EMC’14/Tokyo
2014 International Symposium on Electromagnetic Compatibility, Tokyo
May 12-16, 2014
Hitotsubashi Hall (National Center of Sciences)
PROGRAM
IEICE Communications Society
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<tr>
<td>Room A</td>
<td>[14A1-A]</td>
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</tr>
<tr>
<td>AM1 10:00-11:20</td>
<td>Numerical Modeling (1)</td>
<td>[13A1-H]</td>
<td>Power Electronics &amp; Vehicles (1)</td>
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<tr>
<td>AM2 11:40-13:00</td>
<td>Numerical Modeling (2)</td>
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<tr>
<td>PM1 14:30-15:50</td>
<td>Numerical Modeling (3)</td>
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<tr>
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<td>[Plenary Session: 13P2-H] New Horizon of EMC Research (at Room H)</td>
<td></td>
<td>Welcome Reception (at Room A &amp; B)</td>
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**13 May (TUE)**

**14 May (WED)**
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<tr>
<th>Time</th>
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<td>11:40-13:00  (Continued)</td>
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<tr>
<td>PM2 16:10-17:40</td>
<td>16:10-17:40 [Plenary Session: 13P2-H] New Horizon of EMC Research (at Room H)</td>
<td>Welcome Reception (at Room A &amp; B)</td>
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<tr>
<td>AM1 09:30-10:50</td>
<td>09:30-10:50 [14A1-B] Chip, Package, PCB &amp; Cables (2)</td>
<td>09:30-10:50 [Workshop: 14A-S] Recent Lightning Current Data from Instrumented Towers</td>
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<td>AM2 11:10-12:40</td>
<td>11:10-12:30 (Continued)</td>
<td>11:10-12:30 (Continued)</td>
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<tr>
<td>PM1 14:00-16:00</td>
<td>14:00-16:00 [Organized Session/Workshop: 14P1-B] IC Chip Level EMC for Telecommunication</td>
<td>14:00-16:00 [14P1-S] High Power &amp; High Voltage EMC</td>
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<td>Room H</td>
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<td><strong>AM1</strong> 09:30-10:50</td>
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<tr>
<td>[Organized Session: 15A-H]</td>
<td>[Organized Session: 15A-H]</td>
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<tr>
<td>EMC Aspects of Wireless Power Transfer Systems</td>
<td>EMC Aspects of Wireless Power Transfer Systems</td>
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<td>Coffee Break</td>
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<td><strong>AM2</strong> 11:10-12:30</td>
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<td>11:10-12:30</td>
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<td>EMC Measurements (1)</td>
<td>EMC Measurements (2)</td>
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<td><strong>Lunch Break</strong></td>
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<td><strong>PM1</strong> 14:00-15:20</td>
<td><strong>PM1</strong> 14:00-15:20</td>
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<td>[Organized Session/Workshop: 15P-H]</td>
<td>[Organized Session/Workshop: 15P-H]</td>
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<td>EMC Measurements (3)</td>
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<td><strong>Coffee Break</strong></td>
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<td><strong>PM2</strong> 15:40-17:20</td>
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<td>[Organized Session/Workshop: 15P-H]</td>
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<td>15:40-17:20</td>
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<tr>
<td>Biological Effects, EMF Safety &amp; EMC in Medical Applications and Safety (3)</td>
<td>Biological Effects, EMF Safety &amp; EMC in Medical Applications and Safety (3)</td>
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</tr>
<tr>
<td>Banquet &amp; Award Ceremony (at Josui Kaikan)</td>
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<tr>
<th>Room H</th>
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<tr>
<td><strong>AM1</strong> 09:30-10:30</td>
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<tr>
<td>[Organized Session: 16A-H]</td>
<td>[Organized Session: 16A-H]</td>
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<tr>
<td>Biological Effects, EMF Safety &amp; EMC in Medical Applications and Safety (4)</td>
<td>Biological Effects, EMF Safety &amp; EMC in Medical Applications and Safety (4)</td>
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<td><strong>AM2</strong> 10:50-12:30</td>
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<tr>
<td>[Organized Session: 16A2/H-P]</td>
<td>[Organized Session: 16A2/H-P]</td>
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<tr>
<td>Recent Trends of Standardization Activities and Evaluation Techniques for the Electromagnetic Exposure to the Human Body</td>
<td>Recent Trends of Standardization Activities and Evaluation Techniques for the Electromagnetic Exposure to the Human Body</td>
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<td>10:50-12:30</td>
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<tr>
<td>Communication System EMC (1)</td>
<td>Communication System EMC (1)</td>
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<td><strong>Lunch Break</strong></td>
<td><strong>Lunch Break</strong></td>
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<td><strong>PM1</strong> 14:00-14:40</td>
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<td>14:00-14:40</td>
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<td>Communication System EMC (2)</td>
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<td><strong>PM2</strong> 14:40-16:20</td>
<td><strong>PM2</strong> 14:40-16:20</td>
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<tr>
<td>[Workshop: 16P2-H]</td>
<td>[Workshop: 16P2-H]</td>
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<tr>
<td>Photonics-applied Electromagnetic Measurement</td>
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<td>14:40-16:20</td>
<td>14:40-16:20</td>
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<tr>
<td>Coffee Break</td>
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<td><strong>PM3</strong> 16:40-18:20</td>
<td><strong>PM3</strong> 16:40-18:20</td>
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<td>Photonics-applied Electromagnetic Measurement</td>
<td>Photonics-applied Electromagnetic Measurement for EMC</td>
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<td>16:40-18:20</td>
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<td>[Tutorial: 16P3-A]</td>
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<tr>
<td>Recent Topics of EMC Standardization - Role of ACEC</td>
<td>Recent Topics of EMC Standardization - Role of ACEC</td>
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15 May (THU)

16 May (FRI)
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<th>Time</th>
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<tr>
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<td><strong>AM1 09:30-10:50</strong>[15A1-B] Chip, Package, PCB &amp; Cables (4) <strong>Coffee Break</strong></td>
<td><strong>09:30-10:50</strong> [Workshop: 15A-S] Recent Trend of EMC on Smart Grid</td>
</tr>
<tr>
<td><strong>AM2 11:10-12:30</strong></td>
<td><strong>11:10-12:30</strong>[15A2-B] Chip, Package, PCB &amp; Cables (5) <strong>Lunch Break</strong></td>
<td><strong>11:10-12:30</strong> [Workshop: 15A-S] (Continued)</td>
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<tr>
<td><strong>PM1 14:00-15:20</strong></td>
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<td><strong>PM2 15:40-17:20</strong></td>
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<td><strong>14:00-16:00</strong> [Organized Session: 16P1-S] GPU Computing-based Acceleration of Electromagnetic Simulation</td>
</tr>
<tr>
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General Information

1. Name
2014 International Symposium on Electromagnetic Compatibility, Tokyo (EMC’14/Tokyo)

2. Symposium Period
May 12-16, 2014

3. Venue
Hitotsubashi Hall (National Center of Sciences), Tokyo, JAPAN

4. Supporters

Sponsored by
The Institute of Electronics, Information and Communication Engineers, Communications Society (IEICE-CS)

Technically Co-sponsored by
IEEE EMC Society
Technical Committee on EMC of The Institute of Electrical Engineers of Japan (IEEJ)

Technically Co-operated by
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IEEE EMC-S Sendai Chapter
IEEE Tokyo Section
TPC of Asia-Pacific EMC Symposium (APEMC)
Technical Group on EMC Technology of Korean Institute of Electromagnetic Engineering and Science(KIEES)
Technical Group on EMF and Biology of Korean Institute of Electromagnetic Engineering and Science(KIEES)
International Union of Radio Science(URSI)
International Electrotechnical Commission, Technical Committee on Electromagnetic Compatibility (IEC/TC77)
International Special Committee on Radio Interference (CISPR)
Supported by
Ministry of Economy, Trade and Industry, Japan
Ministry of Education, Culture, Sports, Science and Technology, Japan
Ministry of Internal Affairs and Communication, Japan
Ministry of Land, Infrastructure, Transport and Tourism, Japan

Supporting Foundations
JSPS KAKENHI Grant Number 2574003
National Institute of Information and Communications Technology
Support Center for Advanced Telecommunications Technology Research, Foundation
The Foundation for Technology Promotion of Electronic Circuit Board
The Telecommunications Advancement Foundation

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(As of March, 2014)

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Symposium Events

Technical Tour (Optional)
[Monday, May 12, 2014, 11:00-19:00]
The EMC’14/Tokyo Steering Committee has planned a technical tour for the attendees of the symposium, where they can take lectures about some EMC-related functions of TOKYO SKYTREE, and enjoy a great view of Tokyo Metropolitan Area from the observatory at the height of 350 meters.
*Only the pre-registered attendees who bought a “Technical Tour” ticket (5,000 Japanese yen) can participate in this event.

Plenary Session
[Tuesday, May 13, 2014, 16:10-17:40] (at Room H of the Symposium Venue)
The Plenary Session will take place on the afternoon of Tuesday, May 13, 2014. Two distinguished speakers are invited to give presentations, which will hopefully give insight into the future of EMC technologies, rather than focusing on specific topics on EMC. The participants in EMC’14/Tokyo are cordially invited to this inspiring session before attending the “Welcome Reception.”

Welcome Reception
Join us for the Welcome Reception at Symposium Venue. All the registrants and their accompanying persons are invited to this event without any advanced reservation, where free drinks and light snacks will be served.

Keynote Session
[Wednesday, May 14, 2014, 11:10-12:40] (at Room H of the Symposium Venue)
This Keynote Session has been organized to provide an entire view on the latest research trends in EMC that spreads over almost all fields in technology, and features exciting speeches by three keynote speakers from USA, Europe and Asia, who are the most leading researchers and organizers of
the EMC in their different regions. The session will also serve as a platform for discussing the future of EMC researches in the world.

Banquet & Award Ceremony
[Thursday, May 15, 2014, 18:30-21:00] (at Josui Kaikan)
The social highlight of EMC'14/Tokyo is the Banquet & the Award Ceremony at Josui Kaikan, which is located next to the Symposium Venue.
The EMC'14/Tokyo Award Winners will be commended for their outstanding achievements there. The participants will also experience an exciting Japanese drum performance. Enjoy the dinner and admire the Award Winners with your colleagues and friends.
Each one of the participants for this event is required to have a Banquet Ticket (7,000 JPY/person), which were available on the Pre-Registration System on a first-come-first-served basis.

Technical Exhibition
[From Tuesday, May 13 to Friday, May 16, 2014, 9:30-17:00] (in the foyer on the 2nd floor of the Symposium Venue)
An exhibition area will be provided at the symposium venue from May 13 to 16, 2014, for EMC-related companies and organizations to display their latest products, equipment, instruments, services, publications, etc.
Also, some of the exhibitors will give a seminar during the lunch time at the Symposium Venue.

<Exhibitors List>
-ADVANTEST CORP. (May 15 and 16)
-AET, INC. (May 13, 14, 15, and 16)
-AGILENT TECHNOLOGIES INC. (May 13, 14, 15, and 16)
-ANRITSU CORP. (May 15 and 16)
-AR RF/MICROWAVE INSTRUMENTATION
(May 13, 14, 15, and 16)
-ART-Fi / IMST / NEXTEM (May 13, 14, 15, and 16)
-DENKENSEIKI RESEARCH INSTITUTE CO., LTD.
(May 13 and 14)
-DENSO EMC ENGINEERING SERVICE CORP.
(May 13 and 14)
-ELSA JAPAN INC. (May 13, 14, 15, and 16)
- ETS-LINDGREN JAPAN, INC. (May 13 and 14)
- FUJITSU ADVANCED TECHNOLOGIES LTD.
  (May 13 and 14)
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- KOBE CITY & FOCUS
  (FOUNDATION FOR COMPUTATIONAL SCIENCE)
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- TOHOKU UNIVERSITY (May 15 and 16)
- TOYO CORP. (May 13 and 14)
- TOYO MEDIC CO., LTD. (May 13, 14, 15, and 16)
Plenary Session

Room H | May 13, Tuesday 16:10-17:40

[Plenary Session: 13P2-H] New Horizon of EMC Research
Chairperson: Masao Taki (Tokyo Metropolitan University, Japan)
Co-Chairpersons: Hideaki Sone (Tohoku University, Japan), Takatoshi Shindo (Central Research Institute of Electric Power Industry, Japan)

13P2-H1P. A New Paradigm in ICT and the Role of EMC Research
Masao Sakauchi (National Institute of Information and Communications Technology, Japan)

【Biography】
Dr. Masao Sakauchi was appointed President of the National Institute of Information and Communications Technology (NICT), Japan in April 2013. As President of the NICT, Dr. Sakauchi’s major research area is multimedia data processing techniques for images and videos, especially cutting-edge research in object recognition. Dr. Sakauchi’s professional career started as a full-time lecturer in the Department of Electrical Engineering at the University of Tokyo, Japan in 1975. He joined the University of California, USA as a researcher in 1987. In 1998, he was appointed to Director General of the Institute of Industrial Science at the University of Tokyo. In 2002, he joined the National Institute of Informatics and was appointed Director General in 2005. Dr. Sakauchi holds a Ph.D. in Electronics Engineering and is a professor emeritus at the University of Tokyo. He has also been awarded the Ericsson Telecommunication Award (2010) and the National Order of the Legion of Honour (Chevalier, awarded by the French Republic, 2012).

13P2-H2P. EMC Applications of Electromagnetic Time Reversal
Farhad Rachidi (Swiss Federal Institute of Technology, Switzerland)

【Biography】
Farhad Rachidi (IEEE Fellow, EMP Fellow) is currently a Titular Professor and the head of the EMC Laboratory at the Swiss Federal Institute of Technology (EPFL). Dr. Rachidi is currently the Editor-in-Chief of the IEEE TRANSACTIONS ON ELECTROMAGNETIC COMPATIBILITY, the President of the International Conference on Lightning Protection (ICLP) and the President of the Swiss National Committee of the International Union of Radio Science (URSI). He is the author or coauthor of more than 120 scientific papers published in peer-reviewed journals and over 250
papers presented at international conferences. He was the recipient of several distinctions, in particular the 2005 IEEE EMC Society Technical Achievement Award, the 2005 CIGRE Technical Committee Award. In 2006, he was awarded the Blondel Medal from the French Association of Electrical Engineering, Electronics, Information Technology and Communication (SEE).

### Keynote Session

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<td>[Keynote Session: 14A2-H] Overview of EMC Research Trends</td>
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<td>Chairperson: Osamu Fujiwara (Nagoya Institute of Technology, Japan)</td>
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**14A2-H1K. EMC Research Trends in the USA**

Robert Scully (NASA, USA/President of IEEE EMC Society)

**[Biography]**

Dr. Scully has over 30 years of experience in military and commercial aviation, with experience ranging from weapons research and development to design and technical support of helicopter electrical and avionic systems to engineering design, requirements development, and real time anomaly resolution for Space Shuttle and Space Station systems support.

Since June 2000, Dr. Scully has served as the NASA Johnson Space Center Electromagnetic Compatibility (EMC) Group Lead Engineer. In that role, Dr. Scully is the technical lead for EMC at the Center, provides technical management of the EMI laboratory facility at the Center, and provides support to multiple NASA programs. Dr. Scully is also the lead for the Community of Practice for EMC within NASA. Dr. Scully was recently elevated to IEEE Fellow for contributions to the protection of aerospace systems from lightning and electromagnetic interference, and is currently serving as President of the IEEE EMC Society.
14A2-H2K. EMC Research Trends in Europe
Marcello D’Amore (Sapienza University of Rome, Italy)

[Biography]
Marcello D’Amore is professor emeritus of Electrotechnics and Electromagnetic Compatibility at Faculty of Engineering of the Sapienza University of Rome where he was the first head of the Electrical Engineering Department in 1983. He has published more than 150 papers in the field of electromagnetic compatibility (EMC), nanotechnology and power line communication. Current research interests include nano-interconnects, transparent nano-structured shields, nano-inductors, and HIRF/LEMP interaction to aircraft. He was co-founder of the International Symposium EMC Europe in 1994, Guest Editor of two Special Issues, Editor-in-Chief (2000-2003) and member of the Advisory Board of IEEE Transactions on EMC. He received awards from IEEE EMC Society and from SAE. He is Fellow of IEEE since 1990, Life Fellow since 2010.

14A2-H3K. Overview of EMC related Issues in Japan and Vicinity
Liuji R. Koga (Okayama University, Japan)

[Biography]
Born 1945 in Tokyo, and grown in Mt. Unzen, then in Himeji till his high school days. Graduated from Kyoto University as well as its Graduate School. Dr. Engineering in Electrical Engineering. He was with Atomic Energy Institute, Kyoto University, and then with Okayama University. He met EMC problems in the research of laser application. Professor Emeritus of Okayama University. Past President of EMCJ, subsidiary of IEICE, Japan, and was the chair of “EMC Symposium 2009/Kyoto”. Present member of BoD, IEEE EMCS. He is now conducting a private company, “EM Consulting Ltd.”
Room H May 13, Tuesday 10:00-11:20

Chairperson: Kazuhiro Takaya (Nippon Telegraph and Telephone Corp., Japan)

13A1-H1. Inductance Extraction of a Meander Line on a Coplanar Plane using Partial Element Method
B. Pu, K. Kim, W. Nah (Sungkyunkwan University, Korea)

13A1-H2. Software-related EMI Model Reduction for Two-stage Pipeline Microcontroller
S.-Y. Yuan¹, M. S. Lin² (*Feng Chia University, Taiwan, ²Bureau of Standards, Metrology and Inspection, Taiwan)

13A1-H3. Analysis of Emission From a Slot Nearby a Microstrip Line on a Printed Circuit Board
T. Tobana, T. Sasamori, Y. Isota (Akita Prefectural University, Japan)

V. Mordachev¹, E. Sinkevich¹, G. Stepyan², A. Boag³, S. Maksimenko⁴, P. Kuzhir⁵, G. Miano⁶, M. Portnoi⁷, A. Maffucci⁸ (*Belarusian State University of Informatics and Radioelectronics, Belarus, ¹Tel-Aviv University, Israel, ²Belarusian State University, Belarus, ³University of Naples Federico II, Italy, ⁴University of Exeter, United Kingdom, ⁵University of Cassino and Southern Lazio, Italy)

Room H May 13, Tuesday 11:40-13:00

[13A2-H] Numerical Modeling (2)
Chairperson: Wansoo Nah (Sungkyunkwan University, Korea)

13A2-H1. Numerical Modeling of ESD Events Including Both Charging and Discharging Processes with FDTD-SPICE Direct Linking Solver
K. Fujita (Fujitsu Limited, Japan)

13A2-H2. Determination of EM Coupling on an Electrical Wiring Interconnection System Application of Condensation Approaches on Cable Models
M. Ridel, J. P. Parmantier (ONERA - the French Aerospace Lab, France)

13A2-H3. EMC/EMI Problems and Diffraction Modeling: Finite Difference Time Domain vs. Method of Moments
L. Sevgi¹, G. Ayaydın², M. A. Uslu¹ (*Dogus University, Turkey, ²Zirve University, Turkey)
13A2-H4. Discrete Optimization of EMI Filter Using a Genetic Algorithm
M. Ferber1, R. Mrad1, 2, F. Morel1, C. Vollaire1, G. Pillonnet2, A. Nagari3, J. Vasconcelos4 (1Laboratoire Ampère (CNRS UMR5005), France, 2CPE INL (CNRS UMR5270), France, 3Advanced Audio Design, AMS BU ST Ericsson, France, 4Universidade Federal de Minas Gerais, Brazil)

Room H May 13, Tuesday 14:30-15:50

[13P1-H] Numerical Modeling (3)
Chairperson: Nobuo Kuwabara (Kyushu Institute of Technology, Japan)

13P1-H1. Three-Dimensional Dipole Source Identification Using Two Fixed Receiving Antennas and Its New Algorithm
A. Nishikata, Y. Wada, M. Tawada, Y. Takabe (Tokyo Institute of Technology, Japan)

13P1-H2. Simulation Objects to be used as Unintentional Radiators
B. Menssen, F. Burghardt, H. Garbe (Leibniz Universität Hannover, Germany)

13P1-H3. Study on Charge Oscillation-Induced Low-Frequency Electric Field
K. Kikunaga, H. Yamashita, M. Egashira, K. Nonaka (National Institute of Advanced Industrial Science and Technology, Japan)

L. M. Chen, D. Shi, Y. G. Gao (Beijing University, China)

Room A May 13, Tuesday 10:00-11:20

Chairperson: Masahito Shoyama (Kyushu University, Japan)
Co-Chairperson: Naoto Oka (Mitsubishi Electric Corp., Japan)

T. Uchida1, N. Kuwabara1, H. Sato2 (1Kyushu Institute of Technology, Japan, 2Daiwa Industries Ltd., Japan)

13A1-A2. Inductive Coupling Matrix of a Multiconductor System for a Winding-on-Core Prototype
F. Abdallah, M. Alaküla (Lund University, Sweden)

Y. Shiraki, Y. Sasaki, N. Oka (Mitsubishi Electric Corp., Japan)

X. C. Zhang, M. Shoyama (Kyusyu University, Japan)
Room A May 13, Tuesday 11:40-13:00

[13A2-A] Power Electronics & Vehicles (2)
Chairperson: Naoto Oka (Mitsubishi Electric Corp., Japan)
Co-Chairperson: Masahito Shoyama (Kyushu University, Japan)

13A2-A1. Calculation of Interference between Railway Traction Inverters and Balises
S. Hatsukade¹, A. Yamanaka² (¹Railway Technical Research Institute, Japan, ²West Japan Railway Company, Japan)

13A2-A2. Experimental Evaluation on Time Variation of Conducted Noise Spectrum for a PFC Converter
T. Ibuchi, R. Kamikomaki, T. Funaki (Osaka University, Japan)

13A2-A3. A Study of Common Mode Noise Current of Bridgeless PFC Circuit Considering Voltage Change in Y-Capitors
K. Shi¹, S. Tomioka², M. Shoyama¹ (¹Kyushu University, Japan, ²TDK Lambda, Japan)

13A2-A4. Impact of Thermal Aging on Emission of a Buck DC-DC Converter
A. Boyer, H. Huang, S. Bendhia (LAAS-CNRS, France)

Room A May 13, Tuesday 14:30-15:50

[13P1-A] EMC Management and Standards
Chairperson: Yukio Yamanaka (The Telecommunication Technology Committee, Japan)

13P1-A1. Research of Test Site Validation by using Reference Site Method Frequency Range of 9 kHz to 30 MHz Validation for Test Site by according to CISPR 16-1-4 Document
S. Lee¹, N. Kim¹, H. S. Keum², B. H. Kim², S. H. Choi², J. K. Yang³ (¹Chungbuk National University, Korea, ²Korea Radio Promotion Association, Korea, ³National Radio Research Agency, Korea)

13P1-A2. Consideration for Evaluation Method of Proficiency Test Program on EMI Measurement
K. Osabe, T. Kato (Voluntary EMC Laboratory Accreditation Center Inc., Japan)

13P1-A3. Use of FFT-based Measuring Instruments for EMI Compliance Measurements
J. Medler (Rohde & Schwarz GmbH & Co. KG, Germany)

J. Medler¹, C. Reimer² (¹Rohde & Schwarz GmbH & Co. KG, Germany, ²Rohde & Schwarz International Operations GmbH, Germany)
Room B  May 13, Tuesday 10:00-13:00

[Organized Session: 13A-B] Signal Integrity and Unintentional EM Radiation Related to Printed Circuit Boards

Organizers: Yoshiki Kayano (Akita University, Japan), Yoshitaka Toyota (Okayama University, Japan), and Tzong-Lin Wu (National Taiwan University, Taiwan)

Chairpersons: Yoshitaka Toyota (Okayama University, Japan) / Yoshiki Kayano (Akita University, Japan)
Co-Chairperson: Tzong-Lin Wu (National Taiwan University, Taiwan)

13A-B1. Generalized Debye Model for PCB Dielectrics and Conductors
A. E. Engin, E. Kozachenko (San Diego State University, USA)

M. Shimazaki1, H. Asai2 (1Mitsubishi Electric Corp., Japan, 2Research Institute of Electronics Shizuoka University, Japan)

13A-B3. Application of the MREMC Algorithms for Performance-Based Circuit Board Design
T. H. Hubing, C. Zhu (Clemson University, USA)

13A-B4. A Metamaterial-Inspired and Embedded Structure to Damp the Resonance of the Power/Ground Planes
S. Kahng1, K. Jang1, J. Jeon1, H. Oh2 (1Incheon National University, Korea, 2Innertron Ltd., Co., Korea)

13A-B5. Identifying Dominant Factor of Imbalance Component and EM Radiation from Differential-Paired Lines with Serpentine Equi-Length Routing
Y. Kayano1, H. Inoue2 (1Akita University, Japan, 2The Open University of Japan, Japan)

13A-B6. Modal Equivalent Circuit of Bend Discontinuity in Differential Transmission Lines
Y. Toyota, S. Kan, K. Iokibe (Okayama University, Japan)

13A-B7. Signal Integrity: Influence of Non-linear Driver, Different Bit Rates, and Estimation by Different Algorithms
S.-Y. Hsu, C.-C. Chou, T.-L. Wu (National Taiwan University, Taiwan)

Room B  May 13, Tuesday 14:30-15:50

[13P1-B] Chip, Package, PCB & Cables (1)

Chairperson: Sungtek Kahng (Incheon National University, Korea)
Co-Chairperson: Teruo Tobana (Akita Prefectural University, Japan)

13P1-B1. Imbalance Control by Open Stub for Reduction of Common-Mode Conversion at Differential Transmission Line Bend
T. Matsushima, O. Wada (Kyoto University, Japan)
13P1-B2. Suppression of Mode Conversion by Decreasing Path Difference by using an Asymmetrically Tapered Bend in Differential Transmission Lines
S. Kan', Y. Toyota', K. Iokibe', T. Watanabe'' (Okayama University, Japan, Industrial Technology Center of Okayama Prefecture, Japan)

13P1-B3. Weak-Coupled Cross-Sectional Differential-Paired Lines with Bend Discontinuities for SI and EMI Performances
Y. Kayano', M. Ohkoshi', H. Inoue'' (Akita University, Japan, The Open University of Japan, Japan)

Room S May 13, Tuesday 10:00-13:00

Organizers: Masashi Hayakawa (University of Electro-Communications, Japan) and Katsumi Hattori (Chiba University, Japan)
Chairperson: Masashi Hayakawa (University of Electro-Communications, Japan)
Co-Chairperson: Katsumi Hattori (Chiba University, Japan)

13A-S1. ULF Geomagnetic Anomalous Changes Related to Large Earthquakes: Case and Statistical Studies
K. Hattori, P. Han, M. Hirokawa, C. Yoshino (Chiba University, Japan)

13A-S2. Physics of Electromagnetic Phenomena associated with the Rupture of a Finite Fault Model
Q. H. Huang', H. X. Ren', D. Zhang'' (Peking University, China, University of Science and Technology of China, China)

13A-S3. Ultra-Low-Frequency Magnetic Field Depression for Three Huge Oceanic Earthquakes in Japan and in the Kurile Islands
A. Schekotov', M. Hayakawa'' (Russian Academy of Sciences, Russia, University of Electro-Communications, Japan)

13A-S4. Detections of Electromagnetic Waves Excited by Earthquakes
M. Tsutsui (Kyoto Sangyo University, Japan)

13A-S5. Stochastic Relation between the Line-of-sight VHF Propagation and Earthquakes
K. Motojima, N. Haga (Gunma University, Japan)

13A-S6. Seismo-Ionospheric Perturbations, and the Precursors to the 2011 Japan Earthquake
M. Hayakawa (University of Electro-Communications, Japan)

M. Kamogawa, Y. Orihara, M. Nakamura, Y. Suto, S. Togo, R. Tanaka (Tokyo Gakugei University, Japan)
[13P1-S] Biological Effects, EMF Safety & EMC in Medical Applications and Safety (1)
Chairperson: Takashi Hikage (Hokkaido University, Japan)

13P1-S1. Analysis of Body Hair Movement in ELF Electric Field Exposure — For Mechanism of Seasonal Change in Perception Threshold —
H. O. Shimizu1, K. Shimizu2 (1Hokkaido Institute of Technology, Japan, 2Hokkaido University, Japan)

13P1-S2. Effect of Two-times 24 hour Exposures to 60 GHz Millimeter-waves on Neurite Outgrowth in PC12VG Cells in Consideration of Polarization
T. Shiina1, Y. Suzuki1, Y. Kasai1, Y. Inami1, K. Wake2, M. Taki1 (1Tokyo Metropolitan University, Japan, 2National Institute of Information and Communications Technology, Japan)

13P1-S3. Effect of 915 MHz RFID Exposure on Changes of Body Temperature in Rats
H. S. Kim1, Y. H. Lee1, A. K. Lee2, H. D. Choi3, Y.-S. Lee3, J.-K. Pack4, N. Kim5, Y. H. Ahn1 (1Ajou University School of Medicine, Korea, 2Electronics and Telecommunications Research Institute, Korea, 3Ewha Woman's University, Korea, 4Chungnam National University, Korea, 5Chungbuk National University, Korea)

13P1-S4. Relationship between Spatial-Averaged SAR and Temperature Elevation in Human Head Models from 1–10 GHz
A. Hirata, S. Ohta, I. Laakso, O. Fujiwara (Nagoya Institute of Technology, Japan)

Room H May 14, Wednesday 09:30-10:50
[14A1-H] Numerical Modeling/Biological Effects
Chairperson: Tongning Wu (China Academy of Telecommunication Research, China)

14A1-H1. Estimation of the Electromagnetic Fields Excited by a Cellular Phone in a Typical Aircraft Cabin
M. Shirafune1, T. Hikage1, T. Nojima1, S. Futatsumori2, A. Kohmura2, N. Yonemoto2 (1Hokkaido University, Japan, 2Electronic Navigation Research Institute, Japan)

14A1-H2. Millimeter-Wave Power Absorbed into Rabbit Eye Due to Different Exposure Environments
J. Chakarothai1, 2, Y. Suzuki1, M. Taki1, M. Kojima2, K. Sasaki2, K. Wake2, S. Watanabe2 (1Tokyo Metropolitan University, Japan, 2National Institute of Information and Communications Technology, Japan, 3Kanazawa Medical University, Japan)
14A1-H3. Comparison of SAR in Human Body Radiated from Mobile Phone and Tablet Computer
A. Tateno¹, K. Tanaka¹, T. Nagaoka², K. Saito¹, S. Watanabe², M. Takahashi¹, K. Ito¹ (¹Chiba University, Japan, ²National Institute of Information and Communications Technology, Japan)

T. Nagaoka¹, T. Niwa², S. Watanabe¹ (¹National Institute of Information and Communications Technology, Japan, ²Tokai University School of Medicine, Japan)

Room H May 14, Wednesday 14:00-16:00

[14P1-H] Biological Effects, EMF Safety & EMC in Medical Applications and Safety (2)
Chairperson: Peter Sai Wing Leung (City University of Hong Kong, Hong Kong)
Co-Chairperson: Ilkka Laakso (Nagoya Institute of Technology, Japan)

14P1-H1. A Study on Exposure Level Measurement of the IH Cooker
K. Sato¹, Y. Kamimura² (¹Tohoku Gakuin University, Japan, ²Utsunomiya University, Japan)

14P1-H2. Exposure Assessment for a Wireless Multi-phone Charger
W. G. Kang¹, A. I. Zhbanov², H. Y. Jun², Y. H. Park³, J. K. Pack¹ (¹Chungnam National University, Korea, ²Electromagnetic Environment Research Center, Korea, ³SAMSUNG Electronics, Korea)

I. Laakso, A. Hirata, O. Fujiwara (Nagoya Institute of Technology, Japan)

C. Li¹,², T. Wu² (¹University of Science and Technology Beijing, China, ²China Academy of Telecommunication Research, China)

14P1-H5. Dosimetry for Two modes of Resonance-based Wireless Power Transfer System
S. W. Park¹, E. H. Kim¹, K. Wake², S. Watanabe² (¹Korea Automotive Technology Institute, Korea, ²National Institute of Information and Communications Technology, Japan)

14P1-H6. Electromagnetic Interference with Medical Devices from Third Generation Mobile Phone Including LTE
S. Ishihara¹, J. Higashiyama¹, T. Onishi¹, Y. Tarusawa¹, K. Nagase² (¹NTT DOCOMO, INC., Japan, ²Kanazawa University Hospital, Japan)
Room H  May 14, Wednesday 16:20-18:40

[Organized Session: 14P2-H] Active Implantable Medical Device EMI
Organizer: Takashi Hikage (Hokkaido University, Japan)
Chairperson: Niels Kuster (ETH-Zurich, Switzerland)
Co-Chairperson: Toshio Nojima (Hokkaido University, Japan)

14P2-H1. A New Improved Electrode for the Human Body Model: Application for EMI Assessment of Active Implant Medical Devices
H. Fujimoto¹, T. Toyoshima¹, T. Hikage², T. Nojima² (¹Medtronic Japan Co., Ltd., Japan, ²Hokkaido University, Japan)

14P2-H2. Implantable Cardiac Pacemaker EMI Triggered by HF-band Wireless Power Transfer Coils
T. Hikage, M. Shirafune, T. Nojima (Hokkaido University, Japan)

14P2-H3. Study of Effects of Commercial Shielding Products Attached to Mobile Phone on Human Body with Implanted Medical Device
Y. L. Diao, W. N. Sun, K. H. Chan, S. W. Leung, Y. M. Siu (City University of Hong Kong, Hong Kong)

14P2-H4. Platform for the Modeling of In Vivo Effects Relevant to Implant EM Exposure Safety
E. Neufeld, N. Kuster (IT’IS Foundation, Switzerland)

14P2-H5. Reconsideration of EMI Phenomenon in Active Implantable Medical Devices in the Age of MR Conditional Devices
T. Toyoshima (USCI Holdings, Inc., Japan)

14P2-H6. Safety Assessment of AIMDs under MRI Exposure: Tier3 vs. Tier4 Evaluation of Local RF-induced Heating
E. Cabot¹, E. Zastrow¹,², N. Kuster¹,² (¹IT’IS Foundation, Switzerland, ²ETH Zurich, Switzerland)

14P2-H7. Piece-wise Excitation System for the Characterization of Local RF-Induced Heating of AIMD during MR Exposure
E. Zastrow¹,², M. Capstick¹, E. Cabot¹, N. Kuster¹,² (¹IT’IS Foundation, Switzerland, ²ETH Zurich, Switzerland)

Room A  May 14, Wednesday 09:30-12:30

Organizer: Toshiki Shimasaki (VCCI, Japan)
Chairperson: Fujio Amemiya (NTT Advanced Technology Corp., Japan)
Co-Chairperson: Andy Griffin (Cisco Systems Inc, USA)

14A-A1. Main Objective of this Organized Session “Improving the measurement uncertainty of EMI testing”
K. Osabe (Voluntary EMC Laboratory Accreditation Center Inc., Japan)
14A-A2. Reducing the Standard Compliance Uncertainty by using Ferrite Type CMADs during Radiated Disturbance Measurements Acc. to CISPR 16-2-3  
J. Medler (Rohde & Schwarz GmbH & Co. KG, Germany)

D. M. Lauder¹, R. C. Marshall² (¹University of Hertfordshire, United Kingdom, ²Richard Marshall Limited, United Kingdom)

14A-A4. Improvement of Radiated Emission Measurement Reproducibility by VHF-LISN - Interim Results of International Inter-Laboratory Comparison  
S. Okuyama¹, K. Tanakajima², K. Osabe³, H. Muramatsu⁴ (¹NEC AccessTechnica, Ltd., Japan, ²Intertek Japan K.K., Japan, ³Voluntary EMC Laboratory Accreditation Center Inc., Japan, ⁴VCCI Council, Japan)

14A-A5. A Case Study on the Consistency Improvement in Radiated-Emission Testing by Using LISN  
Y. Tang¹, J. Chen¹, C. Lee², C. Chiu³ (¹Bureau of Standards, Metrology and Inspection (BSMI), Taiwan, ²Electronics Testing Center, Taiwan, ³Da-Yeh University, Taiwan)

14A-A6. Influence of Termination Impedance to Radiated Emission from AC Cable with Ferrite Cores Array below 300 MHz  
N. Kuwabara¹, T. Nakanushi¹, K. Osabe², H. Muramatsu³ (¹Kyushu Institute of Technology, Japan, ²Voluntary EMC Laboratory Accreditation Center, Japan, ³VCCI Council, Japan)

14A-A7. Asymmetric Artificial Networks (AAN) for Balanced Telecommunications Cables Conducted Common Mode Emissions Testing  
B. L. Harlacher (Fischer Custom Communications, Inc., USA)

14A-A8. Impact of table materials on measurements up to 18 GHz  
A. Griffin (Cisco Systems Inc., USA)

Room A May 14, Wednesday 14:00-16:00

Organizer: Takehiro Morioka (National Institute of Advanced Industrial Science and Technology (AIST), Japan)  
Chairperson: David Novotny (National Institute of Standards and Technology, USA)  
Co-Chairperson: Katsumi Fujii (National Institute of Information and Communications Technology, Japan)

Z. Chen (ETS-Lindgren, USA)
14P1-A2. Effects of Incident Directions on Reflection Coefficients of Pyramidal Electromagnetic Wave Absorber
T. Aoyagi¹, K. Kurihara², T. Takizawa², Y. Hirai² (¹Tokyo Institute of Technology, Japan, ²TDK Corp., Japan)

14P1-A3. Propagation Characteristics of Data Communication System for Protection and Disaster Relief Operations Using TV White Space
M. Noda, T. Yukimatsu, T. Kinoshita, M. Shida (Hitachi, Ltd., Japan)

14P1-A4. Electromagnetic Wave Source Visualization System with Lüneburg Lens

14P1-A5. Loop Antenna Calibration Methods in Low-frequency
M. Ishii¹, K. Fujii² (¹National Institute of Advanced Industrial Science and Technology, Japan, ²National Institute of Information and Communications Technology, Japan)

14P1-A6. A Look at the Emissions of Three Low-Power Wireless Charging Devices
D. Novotny (National Institute of Standards and Technology, USA)

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Room A May 14, Wednesday 16:20-18:20

[Organized Session: 14P2-A] EM Information Leakage
Organizer: Yu-ichi Hayashi (Tohoku University, Japan)
Chairperson: William A. Radasky (Metatech Corporation, USA)
Co-Chairperson: Tetsuya Tominaga (Nippon Telegraph and Telephone, Japan)

Y. Hayashi, N. Homma, T. Mizuki, T. Aoki, H. Sone (Tohoku University, Japan)

14P2-A2. Analysis on Equivalent Current Source of AES-128 Circuit for HD Power Model Verification
K. Iokibe¹, K. Maeshima¹, T. Watanabe², H. Kagotani¹, Y. Nogami¹, Y. Toyota¹ (¹Okayama University, Japan, ²Industrial Technology Center of Okayama Prefecture, Japan)

14P2-A3. Correlation Power Analysis using Bit-Level Biased Activity Plaintexts against AES Cores with Countermeasures
D. Fujimoto¹, N. Miura¹, M. Nagata¹, Y. Hayashi², N. Homma², T. Aoki³, Y. Hori³, T. Katashita³, K. Sakiyama³, T. Le⁴, J. Bringer⁴, P. Bazargan-Sabet⁵, S. Bhasin⁶, J. Danger⁷ (¹Kobe University, Japan, ²Tohoku University, Japan, ³National Institute of Advanced Industrial Science and Technology, Japan, ⁴The University of Electro-Communications, Japan, ⁵Morpho, France, ⁶Pierre-and-Marie-Curie University, France, ⁷Telecom ParisTech, France)
14P2-A4. NICV: Normalized Inter-Class Variance for Detection of Side-Channel Leakage
S. B. Bhasin¹, J. Danger¹,², S. Guilley¹,², Z. Najm¹ (¹TELECOM-ParisTech, France, ²Secure-IC S.A.S., France)

14P2-A5. Chosen-message Electromagnetic Analysis against Cryptographic Software on Embedded OS
H. Uno, S. Endo, Y. Hayashi, N. Homma, T. Aoki (Tohoku University, Japan)

S. Bhasin¹, P. Maistri², F. Regazzoni³ (¹Telecom ParisTech, France, ²University Grenoble, France, ³ALaRI - University of Lugano, Switzerland)

Room B May 14, Wednesday 09:30-10:50
[14A1-B] Chip, Package, PCB & Cables (2)
Chairperson: Arif E. Engin (San Diego State University, USA)
Co-Chairperson: Yasuhiro Shiraki (Mitsubishi Electric Corp., Japan)

F. Xiao, Y. Kami (The University of Electro-Communications, Japan)

S.-H. Huang¹, C.-W. Kuo¹, C.-C. Wang², T. Kitazawa³ (¹National Sun Yat-Sen University, Taiwan, ²Advanced Semiconductor Engineering Inc., Taiwan, ³Ritsumeikan University, Japan)

M. H. Lu¹, C. Wang², C. Kuo¹, T. Kitazawa³ (¹National Sun Yat-Sen University, Taiwan, ²Advanced Semiconductor Engineering Inc., Taiwan, ³Ritsumeikan University, Japan)

O. V. Tereshchenko¹, F. J. K. Buesink¹, F. B. J. Leferink¹,² (¹University of Twente, The Netherlands, ²Thales Nederland B.V., The Netherlands)

Room B May 14, Wednesday 11:10-12:30
[14A2-B] Chip, Package, PCB & Cables (3)
Chairperson: Frank Leferink (THALES - University of Twente, The Netherlands)
Co-Chairperson: Takashi Kasuga (Nagano National College of Technology, Japan)

14A2-B1. Forward Wave Analysis for EMC Power Supply Design above 1 GHz
U. Paolello, Y. Komiya, T. Suga, H. Osaka (Hitachi, Ltd., Japan)
14A2-B2. Reduction Technique for Power Supply Noise of Analog-Digital Mixed Circuit Boards -Adjustment of Attached Resistor Method-
S. Baba, S. Sasaki (Saga University, Japan)

14A2-B3. A Low Cost Capacitor Approach for Suppressing Resonance in Power Distribution Networks
K. Yamanaga¹, H. Yamamoto¹, T. Sato² ('Murata Manufacturing Co., Ltd., Japan, ²Kyoto University, Japan)

14A2-B4. The Analysis of EMI Noise Coupling Mechanism for GPS Reception Performance Degradation from SSD/USB Module
H.-N. Lin¹, C.-C. Lu¹, H.-Y. Tsai¹, T.-W. Kung² ('Feng-Chia University, Taiwan, ²Bureau of Standards, Metrology & Inspection, M.O.E.A, Taiwan)

Room B May 14, Wednesday 14:00-16:00

[Organized Session/Workshop: 14P1-B] IC Chip Level EMC for Telecommunication
Organizer: Masahiro Yamaguchi (Tohoku University, Japan)
Chairperson: Masahiro Yamaguchi (Tohoku University, Japan)

14P1-B1W. Through Silicon Via (TSV) Noise Coupling Effects on RF LC-VCO in 3D IC
J. Lim, J. Cho, M. Lee, B. Bae, J. Kim (Korea Advanced Institute of Science and Technology, Korea)

14P1-B2W. Measurements and Simulation of RF Noise Coupling and Its Impacts on LTE Wireless Communication Performance
M. Nagata¹, S. Shimazaki¹, N. Azuma¹, N. Miura¹, S. Muroga², Y. Endo², S. Tanaka², M. Yamaguchi² ('Kobe University, Japan, ²Tohoku University, Japan)

14P1-B3W. Development of Micro Magnetic Field Probe to Evaluate Near Field on RFIC Chip
Y. Endo¹, M. Yamaguchi¹,², Y. Shigeta¹, M. Onishi¹, K. Arai¹, S. Muroga¹ ('Graduate School of Engineering, Tohoku University, Japan, ²New Industry Creation Hatchery Center, Tohoku University, Japan)

14P1-B4W. On-Chip Magnetic Thin-Film Noise Suppressor for IC Chip Level Digital Noise Countermeasure
M. Yamaguchi¹, Y. Endo¹, S. Tanaka¹, T. Ito¹, S. Muroga¹, N. Azuma², M. Nagata² ('Tohoku University, Japan, ²Kobe University, Japan)

14P1-B5. Evaluation and Analysis of Electromagnetic Noise Coupling in a Board with a Mixed Signal IC
K. Tsukamoto, M. Iwanami, E. Hankui (NEC Corporation, Japan)
Room B May 14, Wednesday 16:20-18:20

[Organized Session: 14P2-B] 3D-IC and Packages
Organizers: Joungho Kim (Korea Advanced Institute of Science and Technology, Korea) and Er Ping Li (Institute of High Performance Computing, Singapore)
Chairperson: Joungho Kim (Korea Advanced Institute of Science and Technology, Korea)
Co-Chairperson: Er Ping Li (Institute of High Performance Computing, A-Star, Singapore)

14P2-B1. In-Stack Monitoring of Signal and Power Nodes in Three Dimensional Integrated Circuits
Y. Araga, R. Miura, N. Ueda, N. Miura, M. Nagata (Kobe University, Japan)

14P2-B2. SI/PI Co-simulation including Voltage Regulating Circuitry for High-Performance Multi-Chip Package
J. H. Lim, J. J. Lee, S. Y. Jung (Samsung Electronics, Korea)

E. S. Song, D. Jung, Y. Kim, J. Kim (KAIST, Korea)

14P2-B4. Crosstalk Reduction in TSV Arrays with Direct Ohmic Contact between Metal and Silicon-substrate
D. C. Yang¹, E. P. Li¹, J. L. Li¹, X. C. Wei¹, J. Y. Xie², M. Swaminathan²
¹Zhejiang University, China, ²Georgia Institute of Technology, USA

14P2-B5. Design of Compact and Low-EMI Waveguide Structures based on Through Glass Vias
X. C. Wei, X. Wang, D. Yang, J. Li, X. Wei (Zhejiang University, China)

14P2-B6. Designing Test Patterns for Effective Measurement of Typical TSV Pairs in a Silicon Interposer
Q. Wang¹, K. Shringarpure¹, J. Fan¹, C. Hwang², S. Pan³, B. Achkir³
¹University of Missouri, University of Science and Technology, USA, ²Samsung, Korea, ³Cisco Systems, Inc., USA

Room S May 14, Wednesday 09:30-12:30

[Workshop: 14A-S] Recent Lightning Current Data from Instrumented Towers
Organizers: Marcos Rubinstein (University of Applied Sciences of Western Switzerland, Switzerland) and Farhad Rachidi (Swiss Federal Institute of Technology (EPFL), Switzerland)
Chairperson: Farhad Rachidi (Swiss Federal Institute of Technology, Switzerland)
Co-Chairperson: Marcos Rubinstein (University of Applied Sciences of Western Switzerland HES-SO, Switzerland)

14A-S1W. Introduction to Lightning Current Measurements
M. Rubinstein¹, F. Rachidi²
¹University of Applied Sciences of Western Switzerland, Switzerland, ²Swiss Federal Institute of Technology, Lausanne, Switzerland
14A-S2W. Lightning Measurements at the Gaisberg Tower in Austria
G. Diendorfer (Austrian Electrotechnical Association (OVE), Dept. ALDIS, Austria)

14A-S3W. Lightning Observations at Tokyo Skytree
T. Shindo (CRIEPI, Japan)

14A-S4W. The Peissenberg Tower in Germany
F. Heidler (University of the Federal Armed Forces, Munich, Germany)

14A-S5W. Säntis Tower in Switzerland
M. Paolone1, M. Ruinstein2, F. Rachidi3 (1Swiss Federal Institute of Technology, Lausanne, Switzerland, 2University of Applied Sciences of Western Switzerland, Switzerland)

Room S May 14, Wednesday 14:00-16:00

[14P1-S] High Power & High Voltage EMC
Chairperson: Ting Wu (Osaka University, Japan)
Co-Chairperson: Tomoo Ushio (Osaka University, Japan)

14P1-S1. Calculation of Electromagnetic Fields Inside a Building with Layered Reinforcing Bar Struck by Lightning Using the FDTD Method
A. Tatematsu1, F. Rachidi2, M. Rubinstein3 (1Central Research Institute of Electric Power Industry, Japan, 2Swiss Federal Institute of Technology, Lausanne, Switzerland, 3University of Applied Sciences Western Switzerland, Switzerland)

14P1-S2. The Most Powerful Lightning Discharges in Winter Thunderstorms in Japan Sea Coast
T. Wu, S. Yoshida, T. Ushio (Osaka University, Japan)

14P1-S3. Lightning Surge Voltage Characteristics between the Ports of Telecommunications Equipment for FTTH Service

14P1-S4. VHF Radio Observations of Lightning Discharges on JEM-GLIMS
H. Kikuchi1, T. Morimoto2, T. Ushio3, M. Sato4, A. Yamazaki4, M. Suzuki4 (1Osaka University, Japan, 2Kinki University, Japan, 3Hokkaido University, Japan, 4Japan aerospace Exploration Agency, Japan)

14P1-S5. Current Intentional EMI studies in Europe with a Focus on STRUCTURES
G. S. van de Beek1, F. B. J. Leferink1,2 (1University of Twente, The Netherlands, 2Thales Nederland B.V., The Netherlands)
**Room S** May 14, Wednesday 16:20-17:40

[14P2-S] Power System EMC
Chairperson: Tsuyoshi Funaki (Osaka University, Japan)

14P2-S1. Electromagnetic Radiated Emissions from a Wireless Power Transfer System using a Resonant Magnetic Field Coupling
S. Kong, J. Kim, B. Bae, J. J. Kim, S. Kim, J. Kim (KAIST, Korea)

14P2-S2. Short Range Wireless Power Charging on Small Electric Vehicles
W. Khan-ngern, H. Zenkner (King Mongkut's Institute of Technology Ladkrabang, Thailand)

14P2-S3. Harmonic Current Reduction Method of Hand-Held Resonant Magnetic Field Charger (HH-RMFC) for Electric Vehicle
C. Song, H. Kim, H. Jung, E. Song, S. Kim, J. Kim, J. Kim (Korea Advanced Institute of Science and Technology, Korea)

14P2-S4. Various Approaches to Problems of Multicriterion Optimization Processes of Electric Power Systems
N. V. Korovkin1, 2, M. V. Odintsov1, 2, N. A. Belyaev1, 2, O. V. Frolov2, M. Hayakawa3, 4 (*Theoretical Electrical Engineering dept. St.Petersburg State Polytechnical University, Russia, 2Joint Stock Company «Scientific and Technical Center of Unified Power System», Russia, 3Hayakawa Institute of Seismo Electromagnetics Co. Ltd., The University of Electro-Communications (UEC) Incubation Center, Japan, 4Advanced Wireless Communications Research Center and Research Station on Seismo Electromagnetics, UEC, Japan)

**Room H** May 15, Thursday 09:30-12:30

Organizers: Mauro Feliziani (University of L’Aquila, Italy) and Seungyoung Ahn (Korea Advanced Institute of Science and Technology, Korea)
Chairperson: Mauro Feliziani (University of L’Aquila, Italy)
Co-Chairperson: Seungyoung Ahn (Korea Advanced Institute of Science and Technology, Korea)

T. Campi, S. Cruciani, M. Feliziani (University of L’Aquila, Italy)

15A-H2. Low Frequency Electromagnetic Compatibility of Wirelessly Powered Electric Vehicles
M. Kim1, S. Kim1, Y. Chun2, S. Park2, S. Ahn1 (*KAIST, Korea, 2Chungbuk National University, Korea)

15A-H3. Applicability of Quasistatic Approximation for Exposure Assessment of Wireless Power Transfer
I. Laakso1, T. Shimamoto1, A. Hirata1, M. Feliziani2 (*Nagoya Institute of Technology, Japan, 2University of L’Aquila, Italy)
   D. C. Ng¹, ², E. Skafidas¹, ² (¹National ICT Australia, Australia, ²University of Melbourne, Australia)

   H. Hirayama, H. Yamada, N. Kikuma, K. Sakakibara (Nagoya Institute of Technology, Japan)

15A-H6. Investigation and Analysis on EMC Reduction with Impedance Matching Technique in Wireless Power Transfer System
   F. Bien, S. Oruganti (School of ECE, UNIST, Korea)

15A-H7. Coexistence of Wireless Power Transfer via Microwaves and Wireless Communication for Battery-less ZigBee Sensors
   N. Shinhara, T. Ichihara (Kyoto University, Japan)

15A-H8. Induced Field and SAR in Human Body Model Due to Wireless Power Transfer System with Induction Coupling
   T. Sunohara¹, I. Laakso¹, A. Hirata¹, T. Onishi² (¹Nagoya Institute of Technology, Japan, ²NTT DOCOMO, INC., Japan)

Room H May 15, Thursday 14:00-17:00

[Organized Session/Workshop: 15P-H] Automotive EMC
Organizer: Mauro Feliziani (University of L’Aquila, Italy)
Chairperson: Mauro Feliziani (University of L’Aquila, Italy)
Co-Chairperson: Todd Hubing (Clemson University, USA)

15P-H1. Application of the Imbalance Difference Method to the EMC Design of Automotive ECUs
   L. Niu, T. H. Hubing (Clemson University, USA)

15P-H2. Estimation of Radiated Emissions of an Automotive HV-Inverter in a Distributed System
   D. Schneider, M. Boettcher, S. Tenbohlen, W. Koehler (University of Stuttgart, Germany)

15P-H3. S-parameter Estimation for the Components in Automotive High-voltage Units with Partial Measurements
   N. Maeda¹, S. Fukui¹, T. Murakami², T. Naito², T. Sekine³, Y. Takahashi³ (¹Nippon Soken, Inc., Japan, ²Toyota Motor Corporation, Japan, ³Gifu University, Japan)

15P-H4. On the Radiation from Common Mode Currents on Cables Placed over Joined Conducting Planes Commonly Used in Vehicles
   J. Carlsson, U. Carlberg (SP Technical Research Institute of Sweden, Sweden)

15P-H5. High Quality Factor of CNT-Based Spiral Inductors
   F. Maradei¹, M. D’Amore¹, S. Cruciani², M. Feliziani² (¹Sapienza University, Italy, ²L’Aquila University, Italy)
15P-H6. RF Coupling between High-Voltage and Low-Voltage Systems on a System and Component Level
J. Hohloch, S. Tenbohlen, W. Köhler (University of Stuttgart, Germany)

15P-H7. EMC Aspects in Test Benches for Automotive Equipments
M. Pieralisi1, V. Mariani Primiani1, P. Russo1, A. De Leo1, G. Cerri1, M. Fioravanti2 (‘Università Politecnica delle Marche, Italy, 1Loccioni Group, Italy)

15P-H8W. Full Wave MoM Simulations of High-frequency EM Interactions in EMC Filters
A. Gheonjian1, B. Khvitia1, D. Eremyan1, Z. Kutchadze1, R. Jobava1, X. Bunlon2 (‘EMCoS Ltd., Georgia, 1Renault, Technocentre, France)

Room A May 15, Thursday 09:30-10:50

[15A1-A] EMC Measurements (1)
Chairperson: Seungwoo Lee (Chungbuk National University, Korea)

T. Kasuga1, Y. Saito1, T. Ohashi1, S. Yamada1, H. Inoue2 (1Nagano National College of Technology, Japan, 2The Open University, Japan)

15A1-A2. The Influence of the Scattering Probe on the Measurement Results of Electromagnetic Fields by the Monostatic Modulated Scatterer Technique
R. A. Vogt-Ardatjew1, A. E. Sowa2 (1University of Twente, The Netherlands, 2Wroclaw University of Technology, Poland)

W. A. Arriola, I. S. Kim (Kyung Hee University, Korea)

M. Midori1, H. Kurihara1, T. Aoyagi2 (1TDK Corporation, Japan, 2Tokyo Institute of Technology, Japan)

Room A May 15, Thursday 11:10-12:30

[15A2-A] EMC Measurements (2)
Chairperson: Jens Medler (Rohde & Schwarz GmbH & Co. KG, Germany)

15A2-A1. A Stable and Low-Cost Site Source for Conducted- and Radiated-Emission Consistency Confirming and Daily Checking of Test Sites
C. H. Lee1, T. Y. Yang1, H. C. Hsieh2, J. S. Chen2, C. N. Chiu3 (1Electronics Testing Center, Taiwan, 2Bureau of Standards, Metrology and Inspection (BSMI), Taiwan, 3Da-Yeh University, Taiwan)
15A2-A2. Deviations of Conducted Disturbance Voltages Measured with AMN Due to Differences in Height of the AMN and Its Grounding Conditions
Y. Akiyama¹, K. Kakuda², T. Shimasaki³ (¹NTT Energy and Environment Systems Laboratories, Japan, ²NTT Advanced Technology Corp., Japan, ³VCCI Council, Japan)

15A2-A3. The Electric Field Response of the Van Veen Loop
J. S. McLean, K. Takizawa, A. Medina, R. Sutton (TDK R&D Corp., USA)

Room A May 15, Thursday 14:00-15:20

[15P1-A] EMC Measurements (3)
Chairperson: Yoshiharu Akiyama (Nippon Telegraph and Telephone Corp., Japan)

15P1-A1. The Advantages of Spatial Domain Probe Compensation Technique in EMC Near-Field Measurements
M. Schmidt, M. Albach (Friedrich-Alexander-University Erlangen-Nuremberg, Germany)

15P1-A2. Automated EMC/EMI Near-Field Testbed
S. Kuehn¹, N. Kuster¹, M. Wild², E. Grobbelaar², P. Sepan², B. Kochali², A. Fuchs², J. Lienemann² (¹ITIS Foundation / ETH Zurich, Switzerland, ²Schmid & Partner Engineering AG, Switzerland)

15P1-A3. Study on the Measurement of Microscopic RF Field Distribution with a MFM Tip Exploiting a Beat Signal Between a CPW and an Exciting Coil
Y. Endo, M. Onishi, M. Fukushima, K. Arai, K. Yanagi, Y. Shimada, M. Yamaguchi (Tohoku University, Japan)

15P1-A4. Measurement of Complex Magnetic Fields by Using a 6-port Network
M. Kawakami¹, T. Nambu¹, K. Murano², Y. Kami¹, F. Xiao¹ (¹University of Electro-Communications, Japan, ²Tokai University, Japan)

Room A May 15, Thursday 15:40-17:20

[15P2-A] Biological Effects, EMF Safety & EMC in Medical Applications and Safety (3)
Chairperson: Benoit Derat (ART-Fi SAS, France)

15P2-A1. Design a Dual-Band High-Impedance Surface Structure for Electromagnetic Protection in WLAN Applications
M. S. Lin¹, Y. H. Huang², C.-I G. Hsu³ (¹National Yunlin University of Science & Technology (NYUST), Taiwan)
T. Iwamoto1, 2, T. Arima1, T. Uno1, K. Wake2, K. Fujii2, S. Watanabe2 (1Tokyo University of Agriculture and Technology, Japan, 2National Institute of Information and Communications Technology, Japan)

15P2-A3. A Dispersion Modeling Approach for Designing Broadband Tissue-Simulating Fluids
K. Quéléver1, 2, B. Derat1, O. Meyer3, T. Coradin2, C. Bonhomme2 (1ART-FI SAS, France, 2Sorbonne Universités, UPMC Univ Paris 06, CNRS, UMR 7574, Laboratoire de Chimie de la Matière Condensée de Paris, Collège de France, Paris, France, 3Laboratoire de Génie Electrique de Paris Sorbonne Universités, UPMC Univ Paris 06, Supélec, Univ Paris Sud 11, CNRS UMR 8507, LGEP Gif-sur-Yvette, France)

15P2-A4. Dielectric Property Measurement of Skin and Dosimetry for Millimeter Wave Irradiation up to 100 GHz
K. Sasaki, T. Nagaoka, K. Wake, S. Watanabe (National Institute of Information and Communications Technology, Japan)

15P2-A5. Complex Permittivity Measurement Method of High Loss Materials Using Cylindrical Cavity Resonator in Millimeter-wave Band
A. Tameishi1, T. Kamijo1, Y. Suzuki1, A. Kik1, K. Sasaki2, M. Taki1 (1Tokyo Metropolitan University, Japan, 2National Institute of Information and Communications Technology, Japan)

Room B May 15, Thursday 09:30-10:50

Chairperson: Kengo Iokibe (Okayama University, Japan)

Y. Terai1, Y. Toyota1, K. Iokibe1, T. Watanabe2 (1Okayama University, Japan, 2Industrial Technology Center of Okayama Prefecture, Japan)

Y. Ji, K. Mouthaan, N. Venkatarayalu (National University of Singapore, Singapore)

15A1-B3. Estimation of Common Mode Current on Coaxial Cable with Twisted Wire Pair
T. Takahashi1, L. Niu2, T. Hubing2 (1Takehoku University, Japan, 2Clemson University, USA)

15A1-B4. Evaluation of Practical Model of an On-board Type Common Mode Choke Coil for 3D EMC Simulation
F. Nakamoto, Y. Sasaki, Y. Watanabe, C. Miyazaki, N. Oka (Mitsubishi Electric Corp., Japan)
Room B May 15, Thursday 11:10-12:30

[15A2-B] Chip, Package, PCB & Cables (5)
Chairperson: Takehiro Takahashi (Takushoku University, Japan)

T. Murakami1, M. Maeda1, Y. Mabuchi2, T. Matsushima1, T. Hisakado1, O. Wada1 (1Kyoto University, Japan, 2Hitachi, Ltd., Japan)

15A2-B2. Parasitic Inductive Coupling of Integrated Circuits with their Environment
D. Ioan1, G. Ciuprina1, W. Schilders2 (1Polytechnic University of Bucharest, Romania, 2T. U. Eindhoven, The Netherlands)

15A2-B3. High Spatial Resolution On-chip Active Magnetic Field Probe for IC Chip-Level Near Field Measurements
Y. Shigeta1, N. Sato1, K. Arai1, M. Yamaguchi1, S. Kageyama2 (1Tohoku University, Japan, 2Toppan Technical Design Center Corp., Japan)

15A2-B4. Investigation on Realizing 1 Ω Current Probe Complied with IEC 61967-4 Direct Coupling Method
Y.-C. Chang1, 2, P.-Y. Wang2, S. S. H. Hsu2, Y.-T. Chang3, C.-K. Chen1, H.-C. Cheng1, D.-C. Chang1 (1National Applied Research Laboratories, Taiwan, 2National Tsing Hua University, Taiwan, 3Bureau of Standards, Metrology & Inspection, M.O.E.A., Taiwan)

Room B May 15, Thursday 14:00-17:00

[Organized Session/Workshop: 15P-B] EMC Topics Related to Smart Grid
Organizer: Masamitsu Tokuda (The University of Tokyo, Japan)
Chairperson: Yasutoshi Yoshioka (Fuji Electric, Japan)
Co-Chairperson: Gerhard F. Bartak (Consultant, Austria)

15P-B1. EMI in the Frequency Range 2 - 150 kHz
G. F. Bartak1, A. Abart2 (1Consultant, Austria, 2Netz OÖ Gmbh, Austria)

15P-B2. Electromagnetic Interference Examples of Telecommunications System in the Frequency Range from 2kHz to 150kHz
K. Murakawa, H. Hirasawa, H. Ito, Y. Ogura (NTT EAST, Japan)

15P-B3. CISPR Limits for the Conducted Disturbances of DC Ports of PV-GPCPs
Y. Yoshioka (Fuji Electric Co., Ltd., Japan)

15P-B4. EMC Issues around Traction Power Supply System
H. Hayashiya (East Japan Railway Company, Japan)

15P-B5. Lightning Strike Fault Risk on Wind Power Generation System
T. Shindo (Central Research Institute of Electric Power Industry, Japan)

15P-B6. Geomagnetic Storm Impacts on the High-Voltage Power Grid: Current Understanding and Mitigation Concepts
W. Radasky (Metatech Corporation, USA)

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15P-B7. EMC Issues on Wireless Power Transfer
S. Obayashi¹, H. Tsukahara² (¹Toshiba Corp., Japan, ²Nissan Motor Co., Ltd., Japan)

15P-B8W. EMC Standards for Charging System of Electric Vehicle
H. Tsukahara (Nissan Motor Co., Ltd., Japan)

Room S  May 15, Thursday 09:30-12:30

[Workshop: 15A-S] Recent Trend of EMC on Smart Grid
Organizer: Masamitsu Tokuda (The University of Tokyo, Japan)
Chairperson: Masamitsu Tokuda (The University of Tokyo, Japan)
Co-Chairperson: William A. Radasky (Metatech Corp., USA)

15A-S1W. Recent Trend of EMC on Smart Grid in the USA
W. Radasky (Metatech Corporation, USA)

15A-S2W. Recent EMC Standardization Activity Related to Smart Grid in EU
H. Rochereau (EDF, France)

15A-S3W. Recent Trend of EMC on Smart Grid in Japan
M. Tokuda (The University of Tokyo, Japan)

15A-S4W. Recent Trend of EMC on Smart Grid in Korea
H. Ahn (KESRI (Korea Electrical Engineering & Science Research Institute), Korea)

15A-S5W. Recent Trend of EMC on Smart Grid in China
J. Zheng (STIEE: Shanghai Testing & Inspection Institute for Electrical Equipment, China)

15A-S6W. Recent Trend of EMC on Smart Grid in IEC
H. Ohsaki (The University of Tokyo, Japan)

Room S  May 15, Thursday 14:00-15:20

[Organized Session: 15P1-S] Electromagnetic Noise Radiation and EMI Effects Caused by ESD
Organizers: Shigeki Minegishi (Tohoku Gakuin University, Japan) and Ken Kawamata (Tohoku Gakuin University, Japan)
Chairperson: Takayoshi Ohtsu (Suzuka National College of Tech., Japan)
Co-Chairperson: Dan Shi (Beijing University of Posts and Telecommunication, China)

15P1-S1. Frequency Analysis of Transient Electromagnetic Wave Caused by Low Voltage ESD in Spherical Electrode
K. Kawamata¹, S. Minegishi¹, O. Fujiwara² (¹Tohoku Gakuin University, Japan, ²Nagoya Institute of Technology, Japan)

15P1-S2. ESD Study on Discharge Current and Radiated Electromagnetic Wave with Conductive Polycarbonate Composite Resin
T. Ohtsu¹, H. Doyama¹, K. Sagisaka², T. Shirayama² (¹Suzuka National College of Technology, Japan, ²Yukadenshi Co., Ltd., Japan)
15P1-S3. Characteristics of Small Gap Discharge Event and their EMI Effects
M. Honda¹, S. Isofuku² (¹Impulse Physics Laboratory, Inc., Japan, ²Tokyo Electronics Trading Co., Ltd., Japan)

15P1-S4. The Distinction among Electromagnetic Radiation Source Models Based on Directivity with Support Vector Machines
Z. Liu¹, D. Shi¹, Y. G. Gao¹, Y. Q. Shen², J. J. Bi³, Z. L. Tan³ (¹Beijing University, China, ²Telecommun. Metrol.Center, China, ³Key Lab. of Electromagn. Environ. Effect, Shijiazhuang Mech. Eng., China)

Room H May 16, Friday 09:30-10:30

[16A1-H] Biological Effects, EMF Safety & EMC in Medical Applications and Safety (4)
Chairperson: Yoon Myoung Gimm (Dankook University / EMF Safety Inc., Korea)

Y. Miyaji¹, M. Shimada¹, Y. Mizuno¹, K. Naito² (¹Nagoya Institute of Technology, Japan, ²N. S. Co., Ltd., Japan)

B. H. K. Chia (Sarawak Energy Berhad, Malaysia)

D. T. Le¹, L. Hamada¹, S. Watanabe¹, T. Onishi² (¹National Institute of Information and Communications Technology (NICT), Japan, ²NTT DOCOMO, INC., Japan)

Room H May 16, Friday 10:50-12:30

Organizers: Lira Hamada (National Institute of Information and Communications Technology, Japan)
Chairperson: Lira Hamada (National Institute of Information and Communications Technology, Japan)
Co-Chairperson: Sven Kuhn (IT'IS foundation, Switzerland)

16A2-H1. Research in ITU-T SG5 about Method for Evaluating of Human Exposure Levels when Installing a New Wireless Installation
B. C. Kim, H. Choi (ETRI, Korea)
16A2-H2. Low-EMF Future Networks: the LEXNET EU Project
J. Wiart1, E. Conil1, N. Varsier1, T. Sarrebourse1, A. Hadjem1, L. Martens2,
G. Wermeeren2, Y. Yoann Corre3 ('Orange Labs / WHIST lab’, France,
1Orange Labs / WHIST lab`, France, 2Iminds / Ghent University, Belgium, 3SIRADEL, France)

16A2-H3. EMF Regulation Changes and Some Related Studies of
Human Exposure to Electromagnetic Fields in S. Korea
D. G. Choi1, K. H. Kim1, S. Y. Chung1, Y. M. Gimm2 ('National Radio
Research Agency, Korea, 2Dankook University, Korea)

16A2-H4. Simulated Near-Field Gain and E-Field Intensity of Insulated
Loop Antenna in the Liquid at 30 MHz
N. Ishii1, 2, R. Takezawa1, L. Hamada2, S. Watanabe2 ('Niigata University,
Japan, 2National Institute of Information and Communications Technology,
Japan)

16A2-H5. An Ultra Wideband Alternative to Dipoles for SAR System
Verification
B. Derat1, A. Lages1, L. Aberbour1, T. Julien1, D. Manteuffel2 ('ART-Fi,
France, 2CAU Kiel, Germany)

Room H  May 16, Friday 14:00-14:40

[Organized Session: 16A2/P1-H] Recent Trends
of Standardization Activities and Evaluation
Techniques for the Electromagnetic Exposure
to the Human Body
Organizer: Lira Hamada (National Institute of Information and
Communications Technology, Japan)
Chairperson: Lira Hamada (National Institute of Information and
Communications Technology, Japan)
Co-Chairperson: Sven Kuhn (IT’IS foundation, Switzerland)

16P1-H1. Design of Electric Field Meter to Assess Human Exposure in
Environment with Mobile Base Station
J. Higashiyama, Y. Tarusawa (NTT DOCOMO, INC., Japan)

Devices
N. Kuster, M. G. Douglas (IT’IS Foundation / ETH Zurich Switzerland,
Switzerland)

Room H  May 16, Friday 14:40-16:20

[Workshop: 16P2-H] Photonics-applied Electromagnetic
Measurement for EMC
Organizer: Teruo Onishi (NTT DOCOMO, INC., Japan)
Chairperson: Qiang Chen (Tohoku University, Japan)

16P2-H1W. Activities of PEM Research and Development in Japan
S. Kurokawa (National Institute of Advanced Industrial Science and
Technology (AIST), Japan)
16P2-H2W. Lecture of EO Effect and Its Sensors
H. Murata (Osaka University, Japan)

16P2-H3W. Product Trends of Optical E-field Sensor
J. Ichijoh (SEIKOH GIKEN Co., Ltd., Japan)

16P2-H4W. Antenna Pattern Measurements Using Photonic Sensor
M. Hirose (National Institute of Advanced Industrial Science and Technologies (AIST), Japan)

16P2-H5W. Photonic Technologies Applied to Evaluation of the Human Exposure to Electromagnetic Fields
T. Onishi (NTT DOCOMO INC., Japan)

Room H  May 16, Friday 16:40-18:20

[Organized Session: 16P3-H] Photonics-applied Electromagnetic Measurement for EMC
Organizer: Teruo Onishi (NTT DOCOMO, INC., Japan)
Chairperson: Hiroyoshi Togo (NTT Microsystem Integration)

16P3-H1. Development of Optical Electric Field Sensors for EMC Measurement
B. G. Loader¹, M. J. Alexander¹, R. Osawa² (¹National Physical Laboratory, United Kingdom, ²Seikoh-Giken, Japan)

16P3-H2. Metal-free Electric-field Probe based on Photonics and its EMC Applications
H. Togo (NTT Microsystem Integration Laboratories, Japan)

16P3-H3. Active Electro-Optical Probe System for B1-Field Polarization Mapping in Magnetic Resonance Imaging Systems
S. N. Kuehn¹, B. Kochali², N. Kuster¹ (¹IT’IS Foundation / ETH Zurich, Switzerland, ²Schmid&Partner Engineering AG, Switzerland)

16P3-H4. Antenna Measurement by Simple Optical Link System Using Radio on Fiber Technologies
S. Kurokawa¹, M. Hirose¹, M. Ameya¹, Y. Toba² (¹National Institute of Advanced Industrial Science and Technology, Japan, ²SEIKOH GIKEN Co., Ltd., Japan)

16P3-H5. Shielding Effectiveness Evaluation of Enclosure with Apertures Using Electro-Optic Sensor
N.-W. Kang¹, D.-J. Lee¹, W. Kang², Y.-S. Chung² (¹Korea Research Institute of Standards and Science, Korea, ²Kwangwoon University, Korea)
Room A May 16, Friday 09:30-10:50

[16A1-A] EMC Measurements (4)
Chairperson: Toshihide Tosaka (National Institute of Information and Communications Technology, Japan)

A. Bertrand, M. Ramos (Airbus Defence and Space, France)

V. Rodriguez (ETS-Lindgren Inc., USA)

16A1-A3. Influence of Reverberation Chamber Loading on Extreme Field Strength
R. A. Vogt-Ardatjew1, S. G. van de Beek1, F. B. J. Leferink1, 2 (1University of Twente, The Netherlands, 2Thales Nederland B.V., The Netherlands)

Room A May 16, Friday 11:10-12:30

[16A2-A] Communication System EMC (1)
Chairperson: Ifong Wu (National Institute of Information and Communications Technology, Japan)
Co-Chairperson: Yasushi Matsumoto (National Institute of Information and Communications Technology, Japan)

16A2-A1. Representation and Analysis of Radio Receivers' Susceptibility and Nonlinearity by the Use of 3D Double-Frequency Characteristics
E. Sinkevich, V. Mordachev, D. Petrachkov (Belarusian State University of Informatics and Radioelectronics, Belarus)

16A2-A2. Measurement of Radio Receivers' Front-End Nonlinearity by the Frequency Slipping Technique
E. Sinkevich, V. Mordachev (Belarusian State University of Informatics and Radioelectronics, Belarus)

16A2-A3. A Novel LTE MIMO Antenna with Decoupling Element for Mobile Phone Application
J. Chou1, D. Lin2, C. Wu2, H. Li1 (1National Taiwan University, Taiwan, 2National Taipei University of Technology, Taiwan)
Room A  May 16, Friday 14:00-15:20

[16P1-A] Communication System EMC (2)
Chairperson: Yasushi Matsumoto (National Institute of Information and Communications Technology, Japan)
Co-Chairperson: Ifong Wu (National Institute of Information and Communications Technology, Japan)

S. J. Ambroziak, R. J. Katulski (Gdansk University of Technology, Poland)

16P1-A2. Technical Requirements for Portable TVWS Devices
I. Gepko (Ukrainian State Centre of Radio Frequencies, Ukraine)

16P1-A3. Concept of Compatibility Region for the Evaluation of IR UWB Electromagnetic Compatibility
R. J. Katulski, J. Sadowski (Gdansk University of Technology, Poland)

T. Maekawa1, K. Ogawa2 (1Panasonic Corp., Japan, 2Toyama University, Japan)

Room A  May 16, Friday 15:40-18:20

[Tutorial: 16P2-A] Recent Topics of EMC Standardization - Role of ACEC -
Organizer: Noboru Schibuya (Takushoku University, Japan)
Chairperson: Donald N. Heirman (Don HEIRMAN Consultants, USA)
Co-Chairperson: Noboru Schibuya (Takushoku University, Japan)

16P2-A1T. What is ACEC?
W. Radasky (Metatech Corporation, USA)

16P2-A2T. IEC International Special Committee on Radio Interference (CISPR) Report
D. Heirman (Don HEIRMAN Consultants, USA)

16P2-A3T. Recent Trend of TC 77 and its Subcommittees
H. Ohsaki (The University of Tokyo, Japan)

16P2-A4T. Recent Topics in EMC: Emission Standardization in 2-150 kHz Frequency Band
H. Rochereau (EDF, France)

16P2-A5T. Recent Topics in EMC: E-mobility
J. Delaballe (Consultant for Schneider Electric, France)

16P2-A6T. Recent Topics in EMC: Medical Electronics
R. Sitzmann (Siemens AG, Germany)

16P2-A7T. Recent Topics in EMC: Human Exposure to RF
D. Heirman (Don HEIRMAN Consultants, USA)
Room B May 16, Friday 09:30-10:50

[16A1-B] Immunity / Susceptibility, ESD and Transients (1)
Chairperson: Jianqing Wang (Nagoya Institute of Technology, Japan)
Co-Chairperson: Kimitoshi Murano (Tokai University, Japan)

L. B. Chang¹, C. Shih¹, T. Huang¹, C. Tien², P. Kuei² (¹Chang Gung University, Taiwan, ²National Defense University, Taiwan)

16A1-B2. Improvement of ESD Robustness in Gallium Nitride-based Flip-Chip HEMT by Introducing Metal-Insulator-Metal Capacitor
P. Kuei¹, N. Cheng², Y. Feng², A. Das², S. Lin², C. Lin², L. Chang², Y. Chen² (¹National Defense University, Taiwan, ²National Central University, Taiwan, ³Chang Gung University, Taiwan)

16A1-B3. A Case Study on ESD Immunity Test for a Small-Type Control Board
C. Ji¹, D. Anzai¹, J. Wang¹, I. Mori², O. Fujiwara¹ (¹Nagoya Institute of Technology, Japan, ²Suzuka National Collage of Technology, Japan)

16A1-B4. Assessing the Effect of Discharge Gap Shape on High-Speed Electrostatic Discharge Events
M. Masugi¹, Y. Okugawa², Y. Akiyama², N. Hirasawa³, K. Murakawa³ (¹Ritsumeikan University, Japan, ²NTT corp., Japan, ³NTT east corp., Japan)

Room B May 16, Friday 11:10-12:30

[16A2-B] Immunity / Susceptibility, ESD and Transients (2)
Chairperson: Kimitoshi Murano (Tokai University, Japan)
Co-Chairperson: Jianqing Wang (Nagoya Institute of Technology, Japan)

16A2-B1. Measurement of Spark Length for Air Discharges of Electrostatic Discharge Generators
Y. Taka¹, O. Fujiwara² (¹Kushiro National College of Technology, Japan, ²Nagoya Institute of Technology, Japan)

T. Ishida¹, Y. Tozawa¹, M. Takahashi¹, O. Fujiwara², S. Nitta² (¹Noise Laboratory Co.,LTD., Japan, ²University of Electro-Communications, Japan)
16A2-B3. Statistical Measurement of Burst Discharge Currents through Fingertip from Charged Human
Y. Kagawa¹, I. Mori², Y. Taka³, O. Fujiwara¹ (¹Nagoya Institute of Technology, Japan, ²Suzuka National College of Technology, Japan, ³Kushiro National College of Technology, Japan)

16A2-B4. EMI Evaluation Based on Electromagnetic and Circuit Analysis for Human Body Communication Systems
D. Anzai, J. Wang (Nagoya Institute of Technology, Japan)

Room B May 16, Friday 14:00-16:00
[16P1-B] Shielding, Grounding & Materials (1)
Chairperson: Kenichi Hatakeyama (University of Hyogo, Japan)
Co-Chairperson: Atsuhiro Nishikata (Tokyo Institute of Technology, Japan)

16P1-B1. A Study on Measurement Method of Shielding Effectiveness using Loop Antenna in Low-frequency
M. Ishii, Y. Yamazaki (National Institute of Advanced Industrial Science and Technology, Japan)

16P1-B2. Study on Grounding Condition of Shield Sheath in Shielded Twisted Pair Cable
Y. Watanabe, T. Uchida, Y. Sasaki, N. Oka, H. Ohashi (Mitsubishi Electric Corporation, Japan)

16P1-B3. Electromagnetic Field Distribution in Areas surrounded by Many Wires
H. Echigo, K. Aizawa (Tohoku Gakuin University, Japan)

16P1-B4. Reflection and Transmission of Laminated Structures Consisting a Wire Grid and a Dipole Array Sheet and Dielectric Layer
S. Yamamoto¹, K. Suezaki¹, K. Hatakeyama¹, T. Tsutaoka² (¹University of Hyogo, Japan, ²Hiroshima University, Japan)

16P1-B5. Optimized Shielding Pattern of RF Faraday Cage
N. Ohmura¹, Y. Okano², S. Ogino¹ (¹Microwaveabsorbers Inc., Japan, ²Tokyo City University, Japan)

16P1-B6. EM-Wave Absorber Composed of Periodic Patch Antennas Designed for Both H- and V-polarized Waves at 2.4GHz Band
H. Okawa, A. Nishikata (Tokyo Institute of Technology, Japan)

Room B May 16, Friday 16:20-18:20
[16P2-B] Shielding, Grounding & Materials (2)
Chairperson: Atsuhiro Nishikata (Tokyo Institute of Technology, Japan)
Co-Chairperson: Kenichi Hatakeyama (University of Hyogo, Japan)

16P2-B1. Effect of Height and Width of Pyramid on Temperature Distribution Characteristics of Pyramidal Radiowave Absorbers
S. Imai¹, K. Taguchi¹, T. Kashiwa¹, T. Tabata², K. Kubo², E. Satou² (¹Kitami Institute of Technology, Japan, ²E&C Engineering Co., Ltd., Japan)
S. T. Op 't Land1, O. V. Tereshchenko2, M. Ramdani1, F. B. J. Leferink2, R. Perdriaud1 (1Groupe ESEO, France, 2University of Twente, The Netherlands)

16P2-B3. Analysis of the Permeability Spectra of Fe-Al-Si Granular Composite Materials
T. Tsutaoka1, H. Kinoshita1, T. Kasagi2, S. Yamamoto3, K. Hatakeyama4 (1Hiroshima University, Japan, 2Tokuyama College of Technology, Japan, 3University of Hyogo, Japan, 4Missouri University of Science & Technology, USA)

16P2-B4. Effect of Demagnetizaing Field on Frequency Dispersion of Complex Permeability
S. Muroga, M. Yamaguchi (Tohoku University, Japan)

16P2-B5. Multilayer Ground Determination from Apparent Resistivities and Impact on Grounding Resistances
G. P. Papaiz-Garbini1, 2, L. Pichon2, M. Cucchiaro1, N. Haddad1 (1SNCF Engineering, Electromagnetic Compatibility Service, France, 2LGEP, France)

Room S | May 16, Friday 09:30-11:50
Organizers: Shinichiro Ohnuki (Nihon University, Japan) and Yoshiaki Ando (The University of Electro-Communications, Japan)
Chairperson: Shinichiro Ohnuki (Nihon University, Japan)
Co-Chairperson: Yoshiaki Ando (The University of Electro-Communications, Japan)

16A1-S1. Numerical Calculation of Electromagnetic Scattering from Multiple Objects by Superposition Solution Combined with MoM — Multilevel Algorithm —
M. Tanaka (Gifu University, Japan)

16A1-S2. Scattering Analysis of the Microstrip Array Antenna by Using the PMCHWT-CBFM
T. Tanaka, Y. Nishioka, Y. Inasawa, H. Miyashita (Mitsubishi Electric Corp., Japan)

16A1-S3. A Subgridding Technique for the CIP Method
Y. Ando1, T. Hirota2 (1The University of Electro-Communications, Japan, 2Simulatio Co. Ltd., Japan)
16A1-S4. Estimation of Induced EMF Value in Ground Wire During Ice-Melting Procedure
K. Netreba¹, N. Korovkin¹, S. Vinogradov¹, V. Goncharov¹, M. Hayakawa²,³, A. Repin⁴, A. Shershnev⁴, N. Silin⁵ (¹St. Petersburg State Polytechnic University, Russia, ²The University of Electro-Communications, Japan, ³Advanced Wireless Communications Research Center and Research Station on Seismo Electromagnetics, Japan, ⁴Joint-Stock Company High Voltage Direct Current Power Transmission Research Institute, Russia, ⁵Far Eastern Federal University, Russia)

16A1-S5. Pulse Responses in the Dispersion Media
R. Ozaki, T. Yanaka, N. Sugizaki, T. Yamasaki (Nihon University, Japan)

16A1-S6. Efficient Reflection/transmission Coefficient by Two-layered Dielectric Slab for Accurate Propagation Analysis
R. Sato¹, H. Shirai² (¹Niigata University, Japan, ²Chuo University, Japan)

Room S  May 16, Friday 11:50-12:30

[16A2-S] Numerical Modeling (4)
Chairperson: Sergio A. Pignari (Politecnico di Milano, Italy)

16A2-S1. Comparison of Steady-State Genetic Algorithm and Asynchronous Particle Swarm Optimization on Inverse Scattering of a Partially Immersed Metallic Cylinder
C. H. Sun¹, C. H. Chen², C. H. Huang², C. L. Li³, E. N. Chiu³, S. L. Lee¹ (¹National Taiwan University of Science and Technology, Taiwan, ²Taipei College of Maritime Technology, Taiwan, ³Tamkang University, Taiwan)

16A2-S2. Inverse Scattering Problem of a Two-Dimensional Dielectric Cylinder in Slab Medium
C. H. Chen¹, C. H. Huang², C. H. Sun², C. L. Li³, P. R. Lai³, G. C. Wang¹ (¹Taipei College of Maritime Technology, Taiwan, ²National Taiwan University of Science and Technology, Taiwan, ³Tamkang University, Taiwan)

Room S  May 16, Friday 14:00-16:00

Organizers: Kan Okubo (Tokyo Metropolitan University, Japan) and Emeritus Nagayoshi Morita (MWS lab., Japan)
Chairperson: Kan Okubo (Tokyo Metropolitan University, Japan)
Co-Chairperson: Ilari Hänninen (Computer Simulation Technology AG, Germany)

16P1-S1. Acceleration of Various Direct/Iterative Solvers for MoM by GPU and Its Computational Cost
K. Konno¹, Q. Chen¹, H. Katsuda² (¹Tohoku University, Japan, ²NTT Network Innovation Laboratories, Japan)
16P1-S2. High Performance Computing Techniques for Efficient 3D Full-Wave Simulation of EMC Problems
I. Hänninen, F. Wolfheimer, A. Barchanski, D. Kostka (CST AG, Germany)

16P1-S3. GPU Acceleration on Computational Dosimetry for Rabbit Eyes Exposed to Millimeter Waves
Y. Suzuki¹, A. Koike¹, M. Takamura¹, M. Taki³, M. Kojima², K. Sasaki³, J. Chakarothai³, K. Wake³, S. Watanabe³ (¹Tokyo Metropolitan University, Japan, ²Kanazawa Medical University, Japan, ³National Institute of Information and Communications Technology, Japan)

16P1-S4. GPU Calculation Algorithm for Radiation from MMIC Passive Components
N. Morita (M Wave Solver Lab., Japan)

Room S  May 16, Friday 16:20-18:20

[Organized Session: 16P2-S] Aerospace EMC
Organizers: Filippo Marliani (European Space Agency, The Netherlands) and Sergio A. Pignari (Politecnico di Milano, Italy)
Chairperson: Sergio A. Pignari (Politecnico di Milano, Italy)
Co-Chairperson: Johannes Wolf (European Space Agency, The Netherlands)

16P2-S1. Electromagnetic Interference Control Techniques for Spacecraft Harness
A. Junge¹, J. Wolf¹, N. Mora², F. Rachidi², P. Pelissou¹ (¹ESA - ESTEC, The Netherlands, ²EPFL, Switzerland, ³Astrium SAS, France)

16P2-S2. EMC Issues on Bepicolombo Spacecraft
K. Kempkens (Astrium GmbH, Germany)

16P2-S3. Comparison of Rotational-Run vs Hybrid-Measurement by Modelling of a Large Test Object/Satellite
H. Kuegler (IABG, Germany)

16P2-S4. Sensitivity to Setup Configuration of the Response of Differential Lines Driven by an External Field
F. Grassi¹, S. A. Pignari¹, G. Spadacini¹, F. Marliani² (¹Politecnico di Milano, Italy, ²European Space Agency (ESA), The Netherlands)

16P2-S5. VHF Switching DC/DC Converter Electromagnetic Emissions Assessment
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(National Center of Sciences)

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