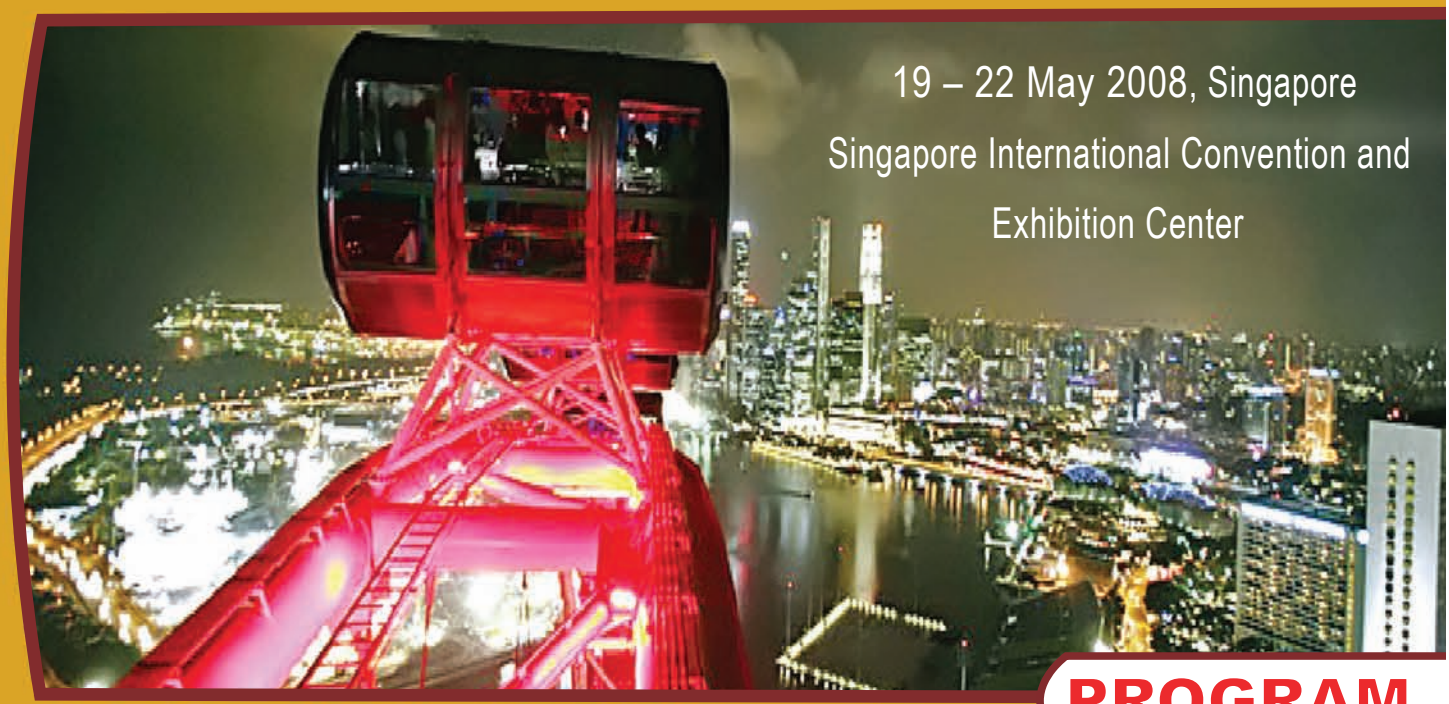
2008 Asia-Pacific Symposium on EMC &
19th International Zurich Symposium on Electromagnetic Compatibility
&
Technical Exhibition on EMC
RF/Microwave Measurements & Instrumentation



PROGRAM

EMC-in-Singapore 2008

The Gateway to Emerging Technologies

EMC Zurich
Singapore 2008

www.apemc2008.org

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APEMC
Singapore 2008

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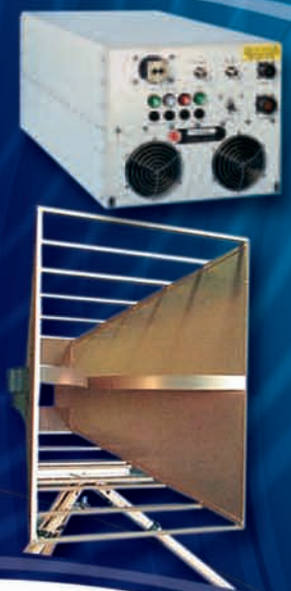

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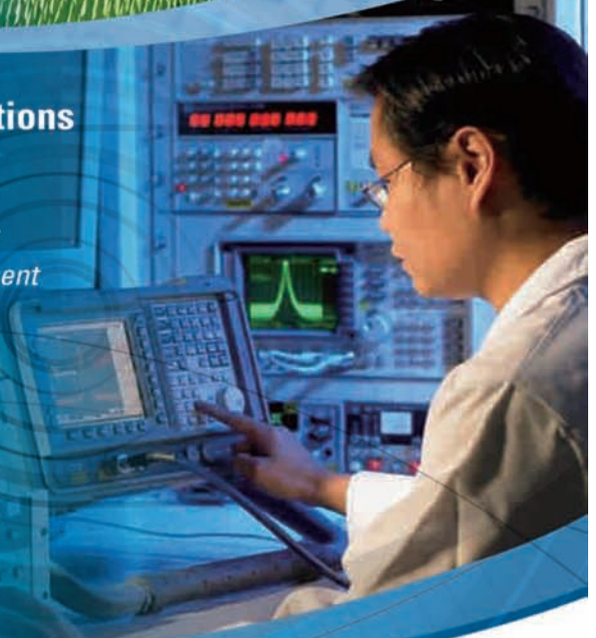

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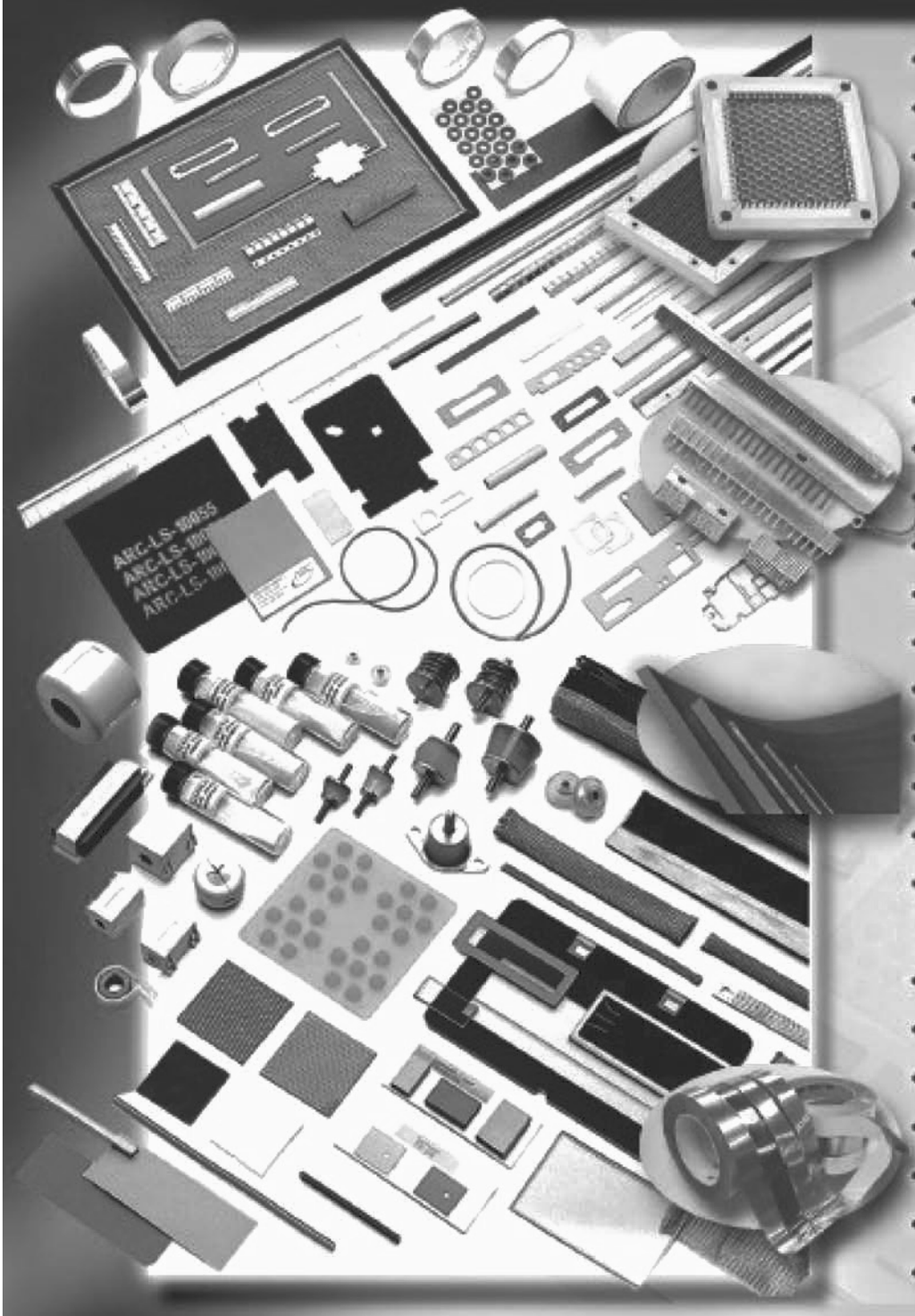

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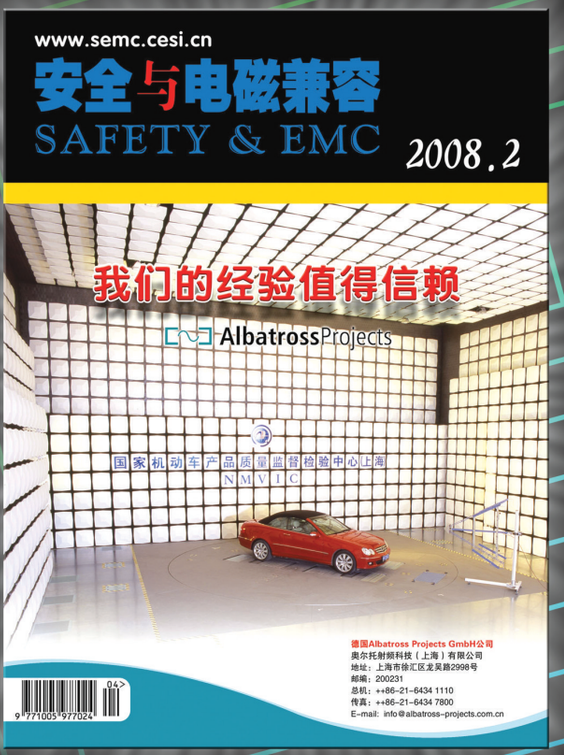

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2008 Symposium President's Message

On behalf of the Symposium General-Chairs, Organizing Committee and Technical Program Committee, I wish all of you a very warm welcome to **EMC-in-Singapore 2008.**

The 2008 Asia-Pacific EMC Symposium is organized in conjunction with the 19th EMC Zurich Symposium (EMC-in-Singapore 2008), this event will not only address the needs of a rapid rising EMC community in the region and it will also aims to promote an excellent and warm relationship amongst the EMC community and members.

The Singapore EMC community is proud and honored to host this historical event held under the theme "The Gateway to Emerging Technologies" and will endeavour to make it a premier event in the Asia Pacific EMC community.

EMC-in-Singapore 2008 presents an exceptional technical program featuring some 200 papers from 25 countries, which makes it a truly global conference. It hopes to provide participants with a stimulating environment to discuss their cutting edge research, to identify new research issues and bridge the gap between academia, industry and government sectors, not only from this region but also worldwide. It offers a platform to present new products and bring together research and industry users in the areas of EMC, RF/Microwave, wireless communications, micro/nano-scale electronics and emerging technologies.

Comprising of experts from all over the world, the **Technical Program Committee** (TPC) of the 2008 EMC in Singapore has selected over 200 papers for presentation during the 3 day event. The papers will cover a wide spectrum of topics ranging from test & measurement techniques, modeling and simulation methods, new facility development, micro/nano-scale IC & packaging EMC, signal integrity and power integrity issues and communication EMC. Included in the program are also the emerging technical topics such as nanotechnology for EMC and biomedical electromagnetics. Industrial Forums have also been planned to discuss industry applications.

A three day International exhibition on the state-of-the-art EMC and RF/Microwave Measurements and Instrumentation further complements the symposium. It provides an excellent opportunity to showcase products, software, publications and services.

Your valued presence and contributions to the EMC-in-Singapore 2008 has made this event a good networking platform for the exchanging of ideas and innovations.

I would like to record my appreciation to all the sponsors, exhibitors, authors, speakers, session chairs for their kind support for this event. To the Organising Committee, the Technical Program Committee and volunteers may I thank you for your hard work and contribution.

To our guests from overseas, please do take time to savour and enjoy the many sights and flavours this diverse multiracial country has to offer. Have a wonderful stay here and we hope to make it a truly memorable one for you.

With best wishes
Er-Ping Li, *PhD, IEEE Fellow*
Symposium President

Technical Program Committee Chair's Message

On behalf of the Technical Program Committee (TPC), I cordially welcome you to attend the 2008 Asia-Pacific EMC Symposium and the 19th EMC Zurich Symposium in Singapore from May 19 to May 22, 2008.

On behalf of the Technical Program Committee (TPC), I cordially welcome you to attend the 2008 Asia-Pacific EMC Symposium and the 19th EMC Zurich Symposium in Singapore from May 19 to May 22, 2008.

The symposium received a total submission of more than 300 papers including the topical meeting and special session papers from over 25 countries. Each paper was reviewed by multiple expert reviewers as well as the respective topic chairs. The final decisions were made by the TPC meeting held in Singapore in January 2008. Approximately 70% of the submissions were accepted for oral presentation at the symposium.

Out of the 300 submissions, 25 papers were received under the special topical meetings, which feature the advancements and recent developments in the areas of Integrated Circuit EMC and Biomedical Electromagnetics. The TPC is very pleased with the quality of the submissions and we trust you will find many papers interesting and informative.

Furthermore, we are honored to have four renowned experts as plenary speakers who will share the most recent advances in their respective fields. Workshops and tutorials will be held on May 19, the first day of the symposium. The technical sessions will be split into four parallel tracks spanning over three days (May 20 – 22, 2008).

The Technical Program Committee has worked hard to generate a diverse and well-organized technical program, which covers nearly all topics that are important to the EMC community. Taking this opportunity, I would like to express our sincere appreciation to the TPC members, special session organizers, topical meeting chairs, and numerous reviewers for their strong and timely support. In particular, I want to thank our TPC Co-Chairs, Prof. Flavio Canavero and Prof. Osamu Fujiwara, for their valuable support and advice through the entire symposium.

We are looking forward to seeing you in Singapore!

Prof. Zhongxiang Shen

TPC Co-Chair

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erpingli@ieee.org

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Technical Program Committee (TPC)

The TPC are led by the TPC Chairs including Prof Zhongxiang Shen, Prof. Flavio Canavero, and Prof. Fujiwara. The Technical Program Committee play a significant role in the success of the Symposium, they have been actively involved in promoting the symposium, organizing sessions or workshops, review the technical papers, and operate the sessions during the symposium. The Technical Topics and Technical Chairs for the 2008 EMC-in-Singapore are listed as follows;

Technical Topics and Chairs

TC-1: EMC Management, Standards and Regulations
Chair(s): Wee-Jin Koh, *Singapore*
Elya B. Joffe, *Israel*

TC-2: EMC Measurement Techniques
Chair(s): Wei Hong, *China*
Perry Wilson, *USA*

TC-3: Lightning
Chair(s): Yoshihiro Baba, *Japan*
Farhad Rachidi, *Switzerland*
Vladimir A. Rakov, *USA*

TC-4: Electromagnetic Environment
Chair(s): Jinliang He, *China*

TC-5: High Power EMC and EMC Power System EMC
Chair(s): Xiang Cui, *China*
W. Radasky, *USA*

TC-6: System Level EMC & PCB EMC
Chair(s): Frank Leferink, *Netherlands*
Wenyan Yin, *China*

TC-7: Transportation EMC including Automotive EMC
Chair(s): Todd Hubing, *USA*
Martin Aidam, *Germany*

TC-8: Antenna & Propagation Issues
Chair(s): Yi-Long Lu, *Singapore*
Sungtek Kahng, *Korea*

TC-9: Electronic Packaging and Integration EMC
Chair(s): Joungho Kim, *Korea*
Tzong-Lin Wu, *Chinese Taipei*

TC-10: Power Integrity and Signal Integrity
Chair(s): James, Drewniak, *USA*
Er-Ping Li, *Singapore*

TC-11: Communication EMC
Chair(s): Jianguo Ma, *China*
Franz Schlagenhaufer, *Australia*

TC-12: Computational Electromagnetics
Chair(s): Le-Wei Li, *Singapore*
Jianmin Jin, *USA*
Christos Christopoulos, *UK*

TC-13: Nanotechnology
Chair(s): W. J. R. Hoefer, *Canada*

TC-14: Microwave Electronics and Components
Chair(s): Robert Weigel, *Germany*

TC-15: IC EMC
Chair(s): Sonia Ben Dhia, *France*
T. Steinecke, *Germany*

TC-16: Bioelectromagnetics
Chair(s): Jianqing Wang, *Japan*
M. Okoniewski, *Canada*

ICEMC — Topical Meeting Chair

Sonia Ben Dhia, *INSA, France*

Co-Chairs

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General Information

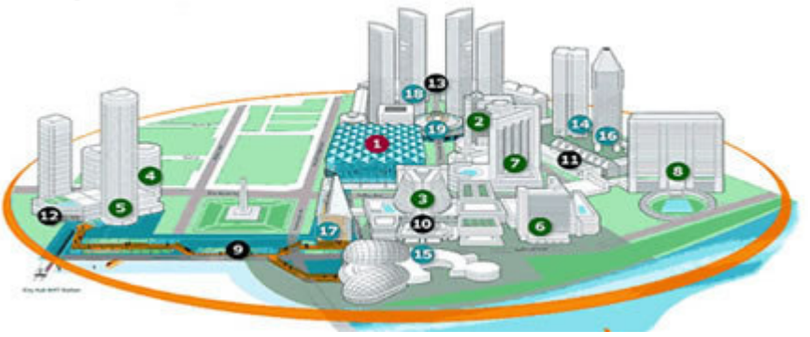
Conference Venue

Suntec City, Singapore

The 2008 EMC in Singapore will be taking place at the largest convention & exhibition centre in Singapore — **The Suntec Singapore International Convention & Exhibition Centre (Suntec Singapore)**.

Suntec Singapore is a world-renowned, international venue that has the perfect location for meetings, conventions and exhibitions. Situated adjacent to the Central Business District of Singapore, while only 20km from Singapore Changi International Airport, Suntec Singapore is at the heart of a self-contained, totally integrated events infrastructure. In addition to its first-class facilities, Suntec Singapore offers direct access to 5,200 hotel rooms, 1000 retail stores, 300 restaurants and the region's new centre for the performing arts, Esplanade — Theatres on the bay.

Venue — Location Map



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13 Suntec City Mall

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Registration Hours

Admission to all sessions and hosted functions requires identification.
Please wear your name badge at all times.

- **18 May 2008, Sunday**
  15:00 – 18:00, *Outside Level 3 Meeting Rooms*
- **19 May 2008, Monday**
  07:30 – 17:00, *Outside Level 3 Meeting Rooms*
- **20 May 2008, Tuesday**
  07:30 – 14:00, *Outside Level 3 Meeting Rooms*
  15:00 – 20:00 at *Exhibition Hall — Level 3 Concourse*
- **21 May 2008, Wednesday**
  20:00 – 17:00 at *Exhibition Hall — Level 3 Concourse*
- **22 May 2008, Thursday**
  08.00 – 12.00 at *Exhibition Hall — Level 3 Concourse*

Useful Telephone Numbers

Symposium Secretariat — CMA International Consultants Pte Ltd

Miss Cheryl Sim / Miss Geri Tan
Address: 1 Liang Seah Street, #02-12 Liang Seah Place
Singapore 189022
Tel: (65) 6336 2328
Fax: (65) 6336 2583
Email: apemc@cma.sg

Getting Around

MRT

The nearest Mass Rapid Transit (MRT) station to the Symposium venue is City Hall MRT Station. Fares range from S$0.90 to S$1.70. You may check for the exact fare at an MRT station or call the Transitlink hotline 1-800-225 5663 for assistance. The operating hours for the hotline are from Mondays to Sundays (excluding Public Holidays), 8.00 am to 6.00 pm.

Bus

Non air-conditioned buses	S0.80 – S$1.50
Air-conditioned buses	S$0.90 – $1.90

Bus fares are tied to routes. You may check with the bus driver for the exact bus fare of your intended route or call the TransitLink hotline 1-800-225 5663 for assistance. The operating hours for the hotline are from Mondays to Sunday (excluding Public Holidays), 08.00 am to 06.00 pm.

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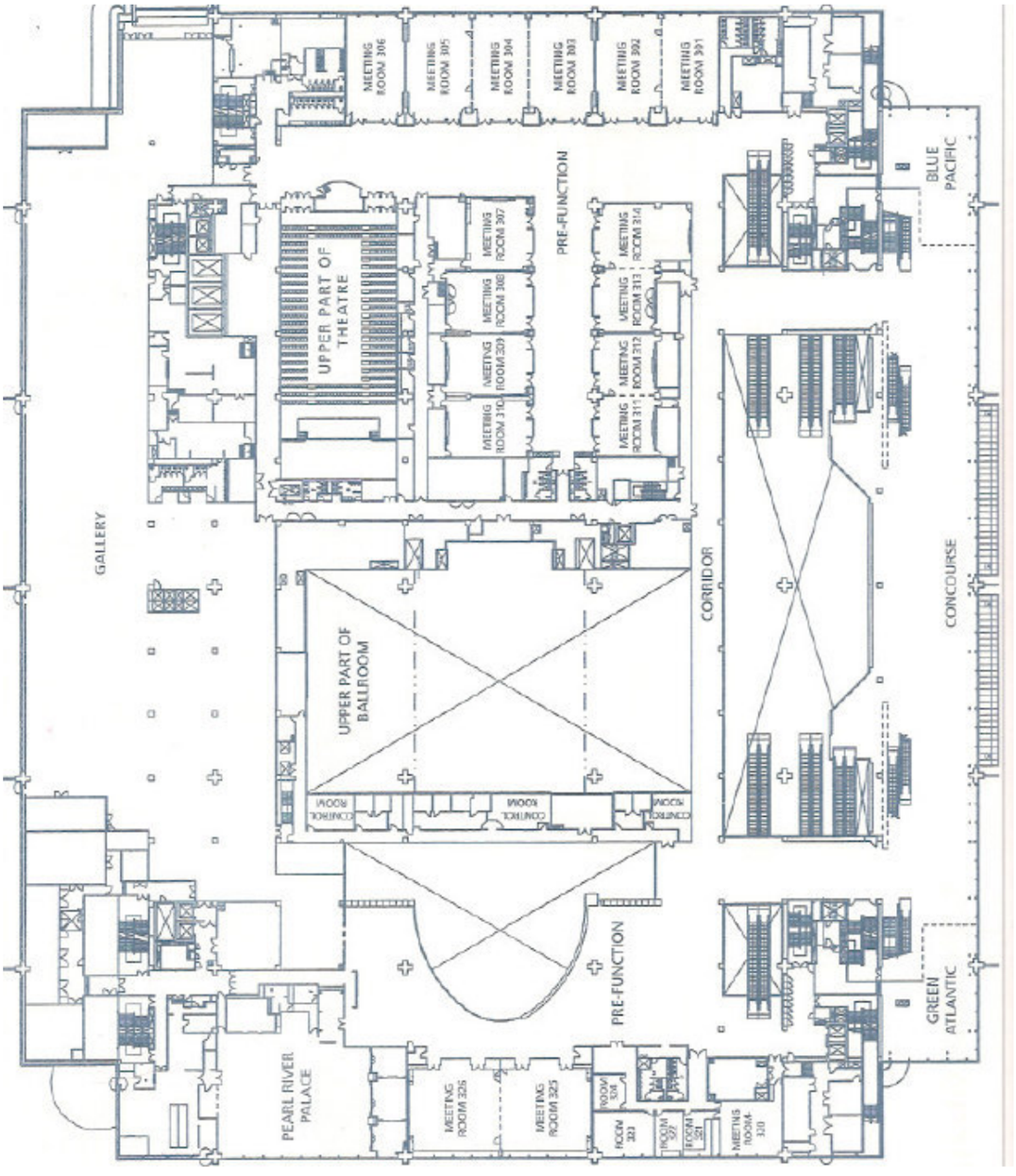
Secretariat Room : 314

Speaker Ready Room: 313

Exhibition Hall: Level-3 Concourse



Speaker Guides

Poster Presentation

Poster sessions will be located on Suntec Level 3 Concourse with the exhibition. Please register at the Registration Desk before proceeding to locate your assigned poster board. To locate your assigned poster board, look for the board marked with your Paper ID.

1. Prepare your poster

Each presenter is provided with a 2.4 metre high by 1 metre wide poster board.

- The presentation must cover the same material as the abstract.
- Place the title of your paper and your paper number prominently at the top of the poster to allow viewers to identify your paper easily. Indicate 1) the abstract's identification number, 2) title, and 3) authors' names.
- Highlight the authors' names, e-mail and address information in case the viewer is interested in contacting them for more information.
- You have complete freedom in displaying your information in figures, tables, text, photographs, etc in the poster.
- Include the background of your research followed by results and conclusions. A successful poster presentation depends on how well you convey information to an interested audience.

2. Set Up Your Poster

- Student best paper competition will be held in the morning of 20 May, Posters should be set up between 7:30 am and 8:30 am on 20 May.
- Posters are scheduled to be on display from 8:30 am to 6:00 pm daily on 20 to 22 May.
- Please make sure that your paper number is clearly visible on your poster board.
- Open forum is as scheduled presenters are required to be at their posters during that time.
- Tapes and other materials are available at the Information Desk, nearby the poster boards.

3. Remove Your Poster

- Posters must be removed on the presentation day between 6:00 pm and 6:30 pm.
- Posters remaining after these times will be removed. EMC in Singapore organizer will not be responsible for posters and materials left on poster boards after the stated hours.

4. Information Desk

Staff at the Information Desk will be available to assist you with location and other on-site needs. Tapes and scissors will be available for your use. If you have special needs for your poster presentation, please bring those supplies with you to the meeting.

If you have questions, please contact the Symposium Secretariat at apemc@cma.sg

Oral Presentation

1. Prepare Your Presentation

Each oral presentation is limited to 20 minutes including questions and answers. Length of presentation material should be in accordance to your time allotted. You are requested to load your presentation materials if it is Power Point before the session starts.

2. Determine Your Audio Visual Needs

All meeting rooms are equipped with the following audio-visual equipment:

1-LCD Projector	1-Window-based PC
1-Screen	1-Laser Pointer

The computers in the meeting rooms are being provided to Windows-based PC users. The PC will be configured with Microsoft Windows XP Professional operating system as well as with Microsoft Office XP.

3. Create a Backup Copy of Your Presentation

We recommend you bring at least 2 copies of your presentation to the meeting in case there is a problem with one of them. Thumb Drive, CD-R and CD-RW are accepted.

4. Give Your Presentation

- Be considerate of the other speakers and audience by staying within your allocated time. The allocated time for your presentation includes a discussion and changeover to the next speaker. Session Chairs will hold you to the allotted time. This is essential to ensure adequate time for questions and discussion as well as adherence to the schedule.
- Please discuss the same materials as reported in your paper submission. At the end of the meeting, all presentation files will be destroyed.

Program Overview and Highlights

Symposium Web

www.apemc2008.org
www.emc-zurich.org

Symposium Hours

19 – 22 May 2008: 08:30 – 18:00

Date	Activities
19 May 2008, Monday	▪ Workshops/Tutorials ▪ Booth Dressing for Exhibitors (Level 3, Concourse)
20 May 2008, Tuesday	▪ Official Opening, Keynote Speeches (*SUNTEC Room 303 – 304*) ▪ Parallel Technical sessions ▪ Best student paper competition ▪ Technical exhibition ▪ Evening Reception at Level 3 Concourse, 6 pm to 9 pm
20 May 2008, Tuesday, 08:30 – 10:30 **Official Opening —** **Meeting Room 303/304 at Level 3**	▪ Opening Remarks by the Symposium Chair ▪ Address by the President of IEEE EMC Society: Elya Joffe ▪ Official Address by Guest of Honor, Prof. TAN Chorh Chuan, *Senior Deputy President, National University of Singapore* ▪ R&D holds the key for Singapore 21st century economy development ▪ Keynote Speech by Albert Ruehli , *IBM T. J. Watson Research Center, USA* ▪ Refreshments and Walk through the Technical Exhibition
21 May 2008, Wednesday – 22 May 2008, Thursday	▪ Technical Sessions ▪ Topical Meetings ▪ Technical Exhibition
21 May 2008, Wednesday	▪ Banquet Dinner and Award Presentation 21 May 2008, 19:00 – 22:00 *Venue: Rasa Sentosa Resort, Singapore*
Refreshments	▪ 19 May 2008, Monday Refreshments are served *outside Meeting Rooms* ▪ 20 May 2008, Tuesday – 21 May 2008, Wednesday Lunch and refreshments are served at Level-3 Concourse area

Social Program

- **Tuesday Welcome Reception**
  At Level 3 Concourse, Suntec
  20 May 2008, Tuesday, 18:00 – 20:00

Welcome to EMC-in-Singapore! Symposium participants are invited to mingle while enjoying the light food and drinks during the opening welcome reception. Take the opportunity to interact with old friends and network new friends. The full registration fee has included the welcome reception.

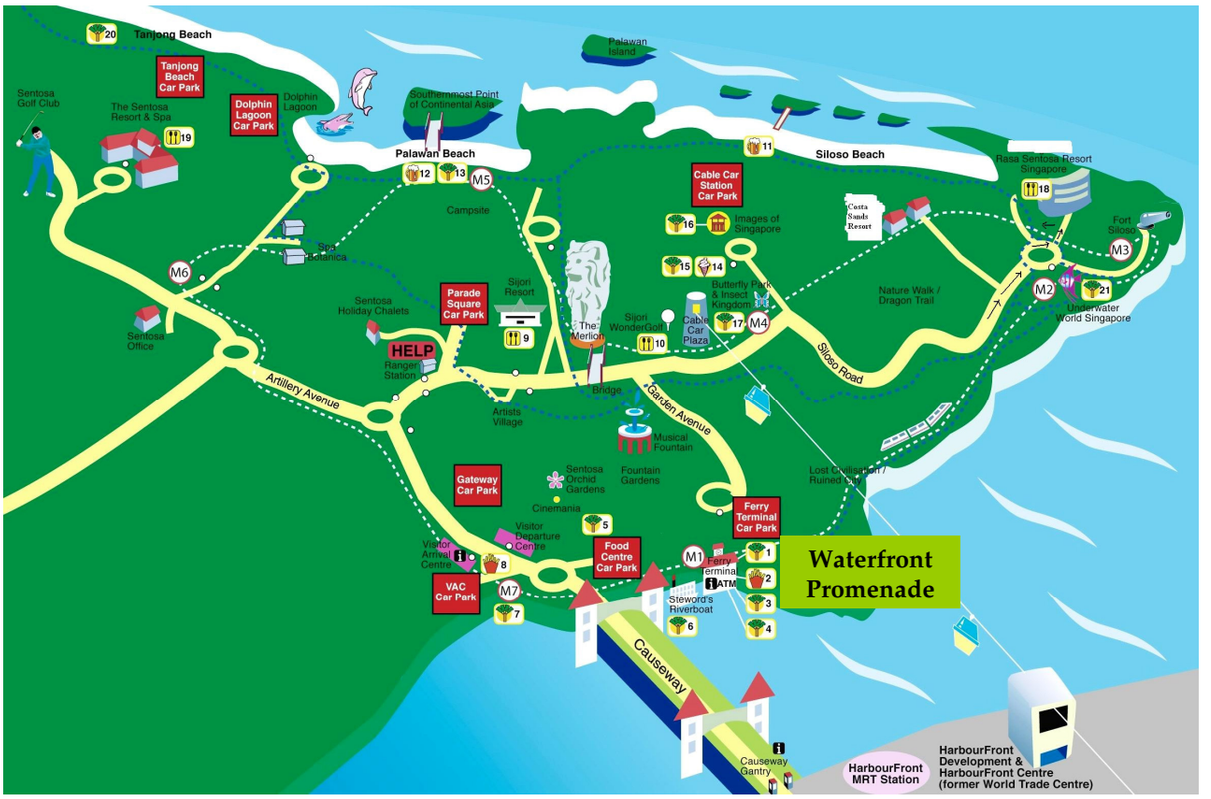
- **Wednesday Night Award Banquet Dinner — Jetsetter Buffet**
  21 May 2008, Wednesday, 18:15 – 21:30
  Coach departs Suntec at 18:15
  Venue: Rasa Sentosa Resort, Singapore
  101 Silosa Road
  Sentosa
  Singapore 098970
  Tel : (65) 6275 0100

Located on the western tip of the island, Rasa Sentosa Resort, Singapore is Singapore's only beachfront hotel. The hotel is only 15 minutes from the city.

Set on a stretch of sandy white beach and overlooking the South China Sea, the hotel blends beautifully with the surrounding environment.

Enjoy an evening of fun and entertainment in a relaxed setting on the beach under the rustling palm trees while listening to the waves at the shore. Ideally held at the Jade Site adorned with surf boards, twinkling torches, beach balls, sail boats and kayaks and decorated with bright colored table cloth, it is time to let loose and be parked on beach mats to cushion the seats. Don into favorite beach attire and sip in refreshing coconut drink served by staff dressed to the theme to kick start the party. As the sun sets behind the horizon of the South China Sea, the great feasts begins under the evening of stars. A mouth-watering barbecue selection that is specially prepared by the chefs is then presented. The selection of tempting meats and fresh seafood is complemented with lavish buffets and mouthwatering desserts.

Transport will be provided to and from the dinner.



Award Presentations

At Wednesday Night Award Banquet Dinner
21 May 2008, Wednesday, 18:15 – 21:30
Venue: Rasa Sentosa Resort, Singapore

First of all, congratulations to Dr. Li Er Ping, the President of the Symposium, has been accorded the status of 'IEEE Fellow', the highest honor to be bestowed by the Institute of Electrical and Electronics Engineers (IEEE). The award of the IEEE Fellow recognises unusual distinction in the profession and is only conferred upon members with an extraordinary record of accomplishments. Congratulations to Dr LI Er Ping once again!

The best student papers and best symposium paper will be announced and the awards will be presented during the Wednesday Night Award Banquet Dinner. The award presentations include

- **Students Paper Awards**
  Three prizes, first, second and third, selected from over 70 student papers are awarded. These student papers are reviewed in the same manner as all other and are further judged on content and presentation by the judge panel.
- **Best Symposium Paper Award**
- **Certificates of Appreciation of Sponsorship**
- **Certificates of Appreciations to Symposium Steering Committee Members**

IEC ACEC EMC Workshop

Commission Electrotechnique Internationale
International Electrotechnical Commission
Международная Электротехническая Комиссия

IEC Asia-Pacific Regional Centre (IEC-APRC)

Status of IEC EMC Standards and New Developments

Suntec Singapore International Convention and Exhibition Center: Room 303

22 May 2008 (18:30 – 20:30)

Time	Topic	Speaker	Comments
18:00	Registration		Refreshments will also be served at registration
18:30 – 18:35	Introduction	Dr. William Radasky	Brief overview of the workshop
18:35 – 18:50	ACEC	Dr. William Radasky	Overview of EMC activity and role of ACEC
18:50 – 19:10	CISPR	Donald Heirman	Overview of CISPR activity
19:10 – 19:30	TC 77	Prof. Michel Ianoz	Overview of TC 77 activity
19:30 – 19:45	Joint Task Forces	Donald Heirman	JTFs between CISPR and TC 77
19:45 – 20:00	TEM/Reverberation	Prof. Michel Ianoz	Discuss new test methods
20:00 – 20:10	EMC Zone	Dr. William Radasky	Present EMC Zone
20:10 – 20:30	Questions from audience	All	Hear immediate concerns / issues from attendees
20:30	Close		

The workshop is free-of-charge.

There is no charge for attending the workshop. To register, simply email to Jacqueline Ong at Email: jon@iec.ch / Tel: +65 6279 1811 with your name, organization, country and contact number.

Technical Sessions

Date	Room No.	303	304	305	306	314
19 May 2008, Monday	**08:30 – 12:30**	W1: IC Packaging and PCB EMC and Signal Integrity	T2: Reverberation Chambers	T4: Fundamentals of Grounding, from Circuit to System	W3: Managing Regulatory Access to Asia Pacific Markets	Speaker Ready room
	13:30 – 16:30	T1: Printed Circuit Board and System Design for Technology of the Future	T3: EMC and Modern Power Electronic Systems	T5: Powering and Grounding for Mission Critical Facility	Industry Forum	
	16:30 – 17:30			Biological Effects and Standards		
20 May 2008, Tuesday	**08:30 – 10:30**	**Opening Ceremony /Keynote Address Location: Suntec Room 303 – 304 Level 3**				
	10:30 – 11:00	**Tea Break**				
	11:00 – 12:20	ICEM-1: Topical Meeting- IC EMC	CEM-1: SS-FDTD and Applications	EMI-3: Electromagnetic Interference	COM-1: EMC in Communication	Exhibition
	12:20 – 13:20	**Lunch Break**				
	13:20 – 15:20	ICEM-1: Topical Meeting- IC EMC (Cont'd)	CEM-1: SS-FDTD and Applications (Cont'd)	BIO-1: SS-RF Radiation Dosimetry	EMI-1: SS-ESD and Transient	Student Poster Session
	15:20 – 15:40	**Tea Break**				
	15:40 – 18:00	SEM-1: PCB EMC	CEM-2: SS-EM Modeling of Distributed Systems	BIO-2: Topical Meeting-Biomedical EMC	LIGH-1: SS-Lightning and Its Effects	
		Welcome Reception Location: Suntec Concourse				
21 May 2008, Wednesday	**08:40 – 10:20**		**Plenary Talks,** *Room 303*			Exhibition
	10:20 – 10:40	**Tea Break**				
	10:40 – 12:20	ICEM-2: Topical Meeting-IC EMC	HPEM-1: SS-High Power EMC 1	MEAS-1: Measurement Technique	AP-1: Antenna for Wireless Communications	Poster Session 2
	12:20 – 13:20	**Lunch Break**				
	13:20 – 15:20	SEM-2: SS-Power Integrity and EMC for Packages	CEM-3: EM Modeling for Complex Problems	MEAS-2: SS-Reverberation chamber	AP-2: Wide-band Antenna	Poster Session 3
	15:20 – 15:40	**Tea Break**				
	15:40 – 18:00	SEM-3: SS-EM Reliability of Package and Boards	HPEM-2: High Power EMC 2	ENV-1: Environment EM 1	IF-1: EMC Industry Forum 1-EMC Simulation	
	18:30 – 22:00	**Banquet Dinner Location: Rasa Sentosa Resort, Singapore**				
22 May 2008, Thursday	**08:40 – 10:20**	SEM-4: Signal Integrity	HPEM-3: SS-High Power EMC 3	MEAS-3: Measurement Technique 2	AP-3: Antenna Arrays	Exhibition
	10:20 – 10:40	**Tea Break**				
	10:40 – 12:20	SEM-5: Power Integrity	CEM-4: CEM New Development and Applications	MEAS-4: Measurement Technique 3	AP-4: Analysis and Design of Antenna	Poster Session 4
	12:20 – 13:20	**Lunch Break**				
	13:20 – 15:20	SYS-1: System Level EMC 1	CEM-5: CEM for Field and circuit Modeling	ENV-2: Environment EMC 2	EMC-1: Complex System EMC	
	15:20 – 15:40	**Tea Break**				
	15:40 – 18:00	SYS-2: System Level EMC 2		EMI-2: EM Devices	IF-2: EMC Industry Forum 2	
	18:30 – 20:30	IEC ACEC EMC Workshop: Status of IEC EMC Standards and New Developments, *Room 303*				

Workshop, Tutorial, and Industry Forum Program

Room No.	303	304	305	306
08:30 – 12:30	**W1: IC Packaging, PCB EMC and Signal Integrity**	**T1: Overview of Reverberation Chambers**	**T3: Fundamentals of Grounding, from Circuit to System**	**W3: Managing Regulatory Access to Asia Pacific Markets**
	W1.1 08:30 – 09:15 **Power Distribution Network Design: Concepts, Plane/s, and Decoupling Capacitors** J. L. Drewniak, *Missouri University of Science and Technology, USA*	**T1.1 08:30 – 09:00** **Introduction** G. Freyer, *Consultant, USA* **T1.2 09:00 – 09:30** **Overview of Reverberation Chambers** C. Bunting, *Oklahoma State University, USA* **T1.3 09:30 – 10:00** **Chamber Design Issues** G. D'Abreu, *ETS Lindgren, USA*	**T3.1 8:30 – 10:00** **Fundamentals of Grounding, from Circuit to System** E. B. Joffe, *Isreal, President of IEEE EMC Society*	**W3.1 08:30 – 08:45** **Introduction and Overview** K. M. Soohoo, *IBM Corp., USA* **W3.2 08:45 –0 9:30** **The latest status of Telecoms and EMC Regulation in South East Asia** Junhong Deng, *TÜV SÜD PSB, Singapore* **W3.3 09:30 – 10:00** **Market Access Through Government-to-Government Mutual Recognition Agreements/Arrangements** M. J. DiBernado, *NIST, USA*
	W1.2 09:15 – 10:00 **Design of Low Noise and High-Performance SiP** J. Kim, *KAIST, Korea*			
	10:00 – 10:30 Tea Break			
	W1.3 10:30 – 11:15 **PCB Radiated Emission Models** T. Hubing, *Clemson University, USA*	**T1.4 10:30 – 10:55** **Measurement Procedures** G. Freyer, *Consultant, USA* **T1.5 10:55 – 11:20** **Chamber Calibration** C. Bunting, *Oklahoma State University, USA* **T1.6 11:20 – 11:45** **Status of Standards** G. D'Abreu, *ETS Lindgren, USA* **T1.7 11:45 – 12:00** **Summary/Discussion** G. Freyer, *Consultant, USA*	**T3.1 10:30 – 12:00** **Fundamentals of Grounding, from Circuit to System** E. B. Joffe, *Isreal, President of IEEE EMC Society*	**W3.4 10:30 – 11:15** **IT Regulatory Scheme of Korea** Y. Jang and Y. Koh, *Ministry of Information and Communication, Korea*
	W1.4 11:15 – 12:00 **Signal Integrity and EMC** M. Walter, *CST, Germany*			**W3.5 11:15 – 12:00** **EMC Regulations in Japan and VCCI** A. Sakurai, H. Nagasawa and K. Yamada *VCCI Japan*
12:30 – 13:30	**Lunch Break**			

Workshop, Tutorial, and Industry Forum Program

Room No.	303	304	305	306
13:30 – 17:30	**T2: Printed Circuit Board and System Design for Technology of the Future**	**T4: EMC and Modern Power Electronic Systems**	**T5: Powering and Grounding for Mission Critical Facility**	**MO-IF-3: Industry Forum 3** **Chair: K. Krohne**
	T2.1 13:30 – 15:30 **Printed Circuit Board Design Concerns for EMC Compliance and Signal Integrity** M. Montrose, *Montrose Compliance Services Inc., USA*	**T4.1 13:30 – 13:55** **EMC and Modern Power Electronics** F. Zare, *Queensland University of Technology, Australia* **T4.2 13:55 – 14:20** **Switching Frequency in Power Converters** F. Zare, *Queensland University of Technology, Australia* **T4.3 14:20 – 14:45** **EMI in DC-DC Converters** F. Zare, *Queensland University of Technology, Australia* **T4.4 14:45 – 15:10** **DC-AC Converter** F. Zare, *Queensland University of Technology, Australia* **T4.5 15:10 – 15:35** **Multilevel Converters** F. Zare, *Queensland University of Technology, Australia* **T4.6 15:35 – 16:00** **Power Electronic Circuits and (di/dt & Stray Inductance)** F. Zare, *Queensland University of Technology, Australia*	**T5.1 13:30 – 16:00** **Powering and Grounding for Mission Critical Facility** Lock K. S., *Principal PQR Consultants, Singapore*	**MO-IF-3-2 13:30 – 13:55** **A Closer Look into Radiated Emissions Final Measurement** Yong Chian Wong, *Singapore* **MO-IF-3-3 13:55 – 14:20** **EMI Evaluation of a Cell phone without an Anechoic Chamber** Hirosuke Suzuki, Tomio Hotchi, Masato Inoue and Shigeru Takeda, *Keycom Corp. Japan* **MO-IF-3-4 14:20 – 14:45** **Easy measurements on the Feld for Electromagnetic Protection Inside of Large Sensitive Systems** Daniel Soleil, *CEMS*; Alain Alcaras, *Thales Communications, France* **MO-IF-3-5 14:45 – 15:10** **What it takes to apply EMI Filtering & Transient Energy Mitigation techniques to COTS Equipment** Brett D. Robinson, *EMI Solutions Inc, USA*
	15:30 – 16:00 **Tea Break**		**15:30 – 16:00** **Tea Break**	**15:30 – 16:00** **Tea Break**
	T2.2 16:00 – 17:30 **Recent Advances in Grounding, Shielding, Filtering, Integrated Circuits and Testing** *E. Nakauchi, G&M Compliance, USA*	**16:00 – 16:30** **Tea Break** **W2: RF Biological Effects and Standards Update** **W2.1 4.30 – 5.30** **RF Biological Effects and Standards Update** C. K. Chou, *Motorola, USA*	**T5.1 16:00 – 17:30** **Powering and Grounding for Mission Critical Facility** Lock K. S, *Principal PQR Consultants, Singapore*	**MO-IF-3-6 16:00 – 17:30** **AutoWave in Automotive & Industrial DC Products Testing & Analysis** Brendon Lim, *EM Test, Malaysia*

Description of Tutorials and Workshops

Tutorial 1: **Introduction of Reverberation Chambers**

Date/Time: Monday, 19 May 2008 / 08:30 – 12:00

Venue: Suntec Room 304

Organizer: G. Freyer, *USA* and C. Bunting, *USA*

Abstract

The Workshop will provide a tutorial overview of the concepts of electromagnetic testing with reverberation chambers. The Workshop should be particularly useful to individuals with EMC test experience as an indication of how the electromagnetic environment in reverberation chambers differs markedly from other test techniques. It will also emphasise how test planning, conduct, and data processing and analysis must use statistical processes.

Tutorial Outline:

T1.1 **Introduction**
G. Freyer, *Consultant, USA*

T1.2 **Overview of Reverberation Chambers**
C. Bunting, *Oklahoma State University, USA*

T1.3 **Chamber Design Issues**
G. D'Abreu, *ETS Lindgren, USA*

T1.4 **Measurement Procedures**
G. Freyer, *Consultant, USA*

T1.5 **Chamber Calibration**
C. Bunting, *Oklahoma State University, USA*

T1.6 **Reverb Chamber Standards Status**
G. D'Abreu, *ETS Lindgren, USA*

Tutorial 2: **Printed Circuit Board and System Design for Technology of the Future**

Date/Time: Monday, 19 May 2008 / 13:30 – 17:30

Venue: Suntec Room 303

Organizers: M. Montrose, *Montrose Compliance Services, Inc., USA*
E. Nakauchi, *G&M Compliance, USA*

Abstract

Technology of today, when designing systems for both EMC compliance and functionality, has advanced to a state where current design techniques are becoming less effective. A new view of the field of electrical engineering must occur if one is to be successful based on what the future may bring with higher speed components, greater power consumption, higher bandwidth interconnects, along with light-weight enclosures and their relationship to shielding effectiveness.

This course has a focus toward hands-on or applied engineering along with fundamentals of both time- and frequency-domain aspects of system design. Without understanding what Maxwell tells us, we

can spend considerable time, money and effort experimenting to achieve EMC. After a thorough examination of EMC fundamentals, we proceed onto advanced topics.

All EMC problems begin and end with electronic circuitry. One must recognise there are second and third order effects that may cause system-wide failure. EMC engineers of today also need to understand both signal integrity (time domain) as well as EMI (frequency domain), along with advances in printed circuit board manufacturing technology, system reliability, lossy transmission line implementation, and the use of new, higher-speed printed circuit board materials for GHz- based systems.

Realising that suppression of EMI at the component and printed circuit board level is nearly impossible for most applications, shielding becomes the final solution to solving EMC. Internal radiated field coupling, light-weight plastic enclosures, Gigahertz signals, and numerous other variables must be understood for a cost effective design. In addition, if improper handling of return currents (what is generally called grounding) is ineffective, additional problems may occur. One must consider the overall system level design aspect of a product for EMC, and not focus strictly at the printed circuit board or how well an enclosure performs. In addition, new test procedures are being required to evaluate systems at higher frequencies

Tutorial Outline:

T2.1 **Printed Circuit Board Design Concerns for EMC Compliance and Signal Integrity**
M. Montrose, *Montrose Compliance Services, Inc., USA*

T2.2 **Recent Advances in Grounding, Shielding, Filtering, Integrated Circuits and Testing**
E. Nakauchi, *G&M Compliance, USA*

Tutorial 3: **Fundamentals of Grounding, from Circuit to System**

Date/Time: Monday, 19 May 2008 / 08:30 – 12:30

Venue: Suntec Room 305

Organizer: E. B. Joffe, Isreal, *President of IEEE EMC Society*

Abstract

One of the problems with grounding is the term itself — it's too vague. Often a single ground may serve multiple needs, with different rule to each. The discipline of Electromagnetic Compatibility (EMC) is concerned with the design of Electronic Systems, while minimizing electromagnetic coupling and interference from within the system and between the system and its environment. The discipline of electromagnetic compatibility covers and requires involvement in a wide range of other fields of engineering, system engineering and electronic engineering, etc.

The concept of "grounding" is probably among the most important, yet less understood topics of electronic design, often considered as "black magic". Yet — grounding forms an inseparable part of all electronic and electrical designs, from circuit through system up to installation design. Grounding is implemented for EMC and ESD protection, for safety purposes, for lightning and surge protection, etc.

This presentation is intended to shed some light on the concepts and pitfalls associated with grounding — an essential and inseparable concept in EMC design. The presentation will cover the rational and fundamental concepts of grounding and its topologies, leading to the implementation of grounding from circuit to system. Practical applications will be extensively discussed. Practical solutions to practical problems, as well as "real life case studies" are used as examples.

Tutorial Outline:

T3.1 **Fundamentals of Grounding, from Circuit to System**
E. B. Joffe, Isreal, *President of IEEE EMC Society*

Tutorial 4: **EMC and Modern Power Electronic Systems**

Date/Time: Monday, 19 May 2008 / 13:30 – 16:30

Venue: Suntec Room 304

Organizer/Speaker: F. Zare, *Queensland University of Technology, Australia*

Abstract

The purpose of this tutorial is to address basic and advanced concepts of EMC in modern power electronic systems which help EMC experts to analysis EMC problems of power electronics used in different applications. Introducing power electronics in details such as transformer and motor design, modulation strategy, switching losses to EMC experts may open a new research area and help development engineers to find better solutions to minimise source of EMI noise at the development phase and improve cost, size and performance of the system.

Tutorial Outline:

T4.1 **EMC and Modern Power Electronics**

T4.2 **Switching Frequency in Power Converters**

T4.3 **EMI in DC-DC Converters**

T4.4 **DC-AC Converter**

T4.5 **Multilevel Converters**

T4.6 **Power Electronic Circuits and (di/dt & Stray Inductance)**

Tutorial 5: **Powering and Grounding for Mission Critical Facility**

Date/Time: Monday, 19 May 2008 / 13:30 – 17:30

Venue: Suntec Room 305

Speaker: Lock K. S., *Principal PQR Consultants, Singapore*

Abstract

Power quality refers to electromagnetic compatibility between power supply characteristics and operation tolerances of electrical and electronic equipment. Increasingly, EMC incompatibilities are causing widespread disruption to operation of sensitive electronic and electrical equipment in industrial and commercial facilities leading to severe operation problems and financial losses.

This half-day course provides a good understanding of various power quality problems — mainly in the forms of voltage disturbances such as dips, transients and surges, flickers and harmonic waveform distortions. The issue of power supply and equipment grounding, often complicated by conflicting demands for dealing with electrical noise and safety simultaneously, will be discussed.

Workshop 1: **IC Packaging, PCB EMC and Signal Integrity**

Date/Time: Monday, 19 May 2008 / 08:30 – 12:30

Venue: Suntec Room 303

Organizer: Erping Li and Joungho Kim

Abstract

Clock frequencies of high-speed semiconductor IC's, packages, and systems are increased over GHz frequency ranges. Management of current wave propagation, loss, decoupling, resonance, and radiation at the power distribution network (PDN) and the return current path becomes a crucial part of the IC, package, and system co-design in order to maintain power and ground integrity of the system.

In this workshop, we will discuss the fundamental design principles and challenges to achieve the low noise PDN, and the return current path by applying the concepts of the chip, package, and PCB PDN co-design. The topics include PDN impedance control, inductance management, optimal decoupling scheme, cavity resonance, and electromagnetic emission. In addition, we will introduce the noise generation and coupling issues by return current path break at the PDN and the signal line. Effects of the return current discontinuity will be discussed including common impedance coupling, crosstalk, and radiated emission. Finally, impact on the degradation of timing and noise margin, and system reliability will be covered.

Workshop Outline:

W1.1 **Power Distribution Network Design: Concepts, Planes, and Decoupling Capacitors**
J. L. Drewniak, *Missouri University of Science and Technology, USA*

W1.2 **Design of Low Noise and High-Performance SiP**
Joungho Kim, *KAIST, Korea*

W1.3 **PCB Radiated Emission Models**
T. Hubing, *Clemson University, USA*

W1.4 **Signal Integrity and EMC**
M. Walter, *CST, Germany*

Workshop 2: **RF Biological Effects and Standards Update**

Date/Time: Monday, 19 May 2008 / 16:30 – 17:30

Venue: Suntec Room 304

Speaker: Dr. C. K. Chou, *Motorola, USA*

Abstract

The dramatic increase in man-made radio frequency (RF) fields in the environment during the last few decades has led to public health concerns in many parts of the world. Specifically, questions have been raised on the safety of exposure to RF energy emitted from radar, television and radio communication systems, microwave ovens, video display terminals, and most recently, mobile telephones and base stations, Wi-Fi and WiMAX. The WHO EMF database now has more than 1600 original, peer-reviewed papers useful for public health risk assessment of RF exposure. In this presentation, recent epidemiological, human, animal and in vitro studies will be summarised. There have been many reported low intensity electromagnetic wave biological effects, but none of the "non-thermal effects" can be independently replicated or shown to be harmful. Reviews of independent expert panels and health authorities will be discussed also. All of these reviews have consistently concluded that there is no

credible or convincing evidence that RF exposure within ICNIRP limits causes adverse human health effects. Proper engineering and biological study designs will be emphasised to ensure any observed effects are genuine RF-field induced effects and not due to experimental artefacts. RF dosimetry will be emphasised because the complexity of RF dosimetry is part of the reason why there are so many controversial reports in the literature. Recently developed standards for protecting human health as well as measurement standards for RF emitting devices for compliance requirements will be discussed. Safety standards include the new IEEE C95.1 human exposure guidelines and IEEE C95.7 RF safety program recommendations. The IEEE C95.1 standard will be compared to the 1998 guidelines of the International Commission on Non-Ionising Radiation Protection. An overview of global RF safety regulations will be presented. Measurement standards to be discussed include IEEE 1528 and IEC 62209 part 1 (characterising mobile phone exposure in the head) and IEC 62209 part 2 (two-way radios and body worn devices). Harmonisation of both RF safety and measurement standards is important for minimising confusion in global regulations and public concerns.

Workshop 3: **Managing Regulatory Access to Asia Pacific Markets**

Date/Time: Monday, 19 May 2008 / 08:30 – 12:30

Venue: Suntec Room 306

Organizer: K. M. Soohoo, *IBM, USA*

Abstract

Markets in the Asia Pacific region are heavily sought after, but keeping up with technical regulations around the world can be a challenge. EMC regulatory requirements vary widely, and rules regarding testing, product certification, declaration of conformity, registration, and MRAs (Mutual Recognition Agreements) can be confusing and costly for manufacturers — and the test labs and certification bodies who serve them — to effectively market their products in these countries. In this workshop, participants will learn about the EMC regulatory requirements of various Asia Pacific countries, as well as the U.S. and Canada, and the steps that are necessary in order to successfully market a product to some of the countries in this region.

Workshop Outline:

W3.1 **Introduction and Overview**
K. M. Soohoo, *IBM Corp., USA*

W3.2 **The Latest Status of Telecoms and EMC Regulations in South East Asia**
Junhong Deng, *TÜV SÜD PSB, Singapore*

W3.3 **Market Access through Government-to-Government Mutual Recognition Agreements/Arrangements**
M. J. DiBernado, *NIST, USA*

W3.4 **IT Regulatory Scheme of Korea**
Y. Jang and Y. Koh, *Ministry of Information and Communication, Korea*

W3.5 **EMC Regulations in Japan and VCCI**
A. Sakurai, H. Nagasawa and K. Yamada, *VCCI Japan*

Technical Sessions

AUTO : Automotive EMC
AP : Antenna and Propagation
BIO : Biomedical EMC
CEM : Computational Electromagnetics
COM : Communication EMC
ICEM : IC EMC
IEMI : Intentional Electromagnetic Interference
LIGHT : Lightning EMC
MEAS : EMC Measurement and Testing Techniques
SEM : Semiconductor EMC, IC & packaging EMC, Signal and power integrity
SYS : System Level , PCB EMC
SS : Special Session

*Note: ** denotes the paper selected as the candidate paper for best student paper prize competition*

Keynote Address

Electromagnetic EMC Modeling Techniques: Past, Present and Future

Dr Albert E. Ruehli, *IBM T. J. Watson Research Center, USA*
Date/ Time: Tuesday, 20 May 2008 / 09:00 – 09:40
Venue: Suntec Room 303 – 305

Abstract

The keynote address offers an overview of the evolution and future of electromagnetic EMC modeling techniques.

First, let's review the historical evolution of the key equations we use daily. There are fundamental aspects of electromagnetic and circuit analyses. "**In the beginning**," just a few researchers contributed *such* remarkable results to the fundamentals of electromagnetic and circuit theories. An interesting transformation has recently taken place. Twenty-five years ago, electronic system design could be performed mostly with a modest transmission line calculator, maybe an inductance and capacitance calculator, a SPICE circuit solver, and copper tape. But in the last twenty years, there has been *incredible* progress. This transforming progress will be reviewed in our presentation.

Today, design requires knowledge of signal and power integrity as well as all other aspects of EMC design, and it is necessary to be an educated specialist in all of these areas. Fortunately, there are multitudinous and excellent tools available today for the numerous challenges at hand. Outstanding progress has been made in the fundamental electromagnetic solution techniques. Some of the progress will be highlighted.

Not only will future systems be much larger but also *much,* more dense. In these systems, we will see increased coupling between all parts. Furthermore, coupling between the system parts may be of a multi-physics nature. As an example, electrical and thermal designs may have to be performed as a coupled solution. Additionally, parallel processing will become a necessity rather than a luxury.

Speaker Biography:

Albert E. Ruehli received a honorary doctor degree in 2007 from the Lulea University in Sweden and the Ph.D. degree in electrical engineering in 1972 from the University of Vermont, Burlington.

He has been a member of various projects with IBM including mathematical analysis, semiconductor circuits and devices modeling, and as manager of a VLSI design and CAD group. Since 1972, he has been at the IBM T.J. Watson Research Center, Yorktown Heights, NY, where he now is a Research Staff Member in the Electromagnetic Analysis Group. He is the editor of two books, Circuit Analysis, Simulation and Design (New York, North Holland 1986,1987) and he is an author or coauthor of over 100 technical papers.

Dr. Ruehli has served in numerous capacities for the IEEE. In 1984, 1985 he was Technical and General Chairman, respectively, of the ICCD International Conference. He has been a member of the IEEE ADCOM for the Circuit and System Society and an associate editor for the Trans. on Computer-Aided Design. He has given talks at universities including keynote addresses and tutorials at conferences, and has organized many sessions. He received IBM Research Division or IBM Outstanding Contribution Awards in 1975, 1978, 1982,1995 and 2000. In 1982, he received the Guillemin-Cauer Prize Award for his work on waveform relaxation, and in 1999, he received a Golden Jubilee Medal, both from the IEEE CAS Society. In 2001, he received a Certificate of Achievement from the IEEE EMC society for inductance concepts and the Partial Element Equivalent Circuit (PEEC) method. He received the 2005 Richard R Stoddart Award and in 2007 he received the Honorary Life Member Award from the IEEE Electromagnetic Compatibility Society for outstanding technical performance. He is a life fellow of the IEEE and a member of SIAM.

Keynote Speech

Title: EMC Simulations in Time and Frequency Domain

By Prof. Dr.-Ing Thomas Weiland,
Technical University of Darmstadt, Germany
Date/ Time: Wednesday, 21 May 2008 / 08:40 – 09:25
Venue: Suntec Room 303

Abstract

There are two major groups of algorithms for numerical field computation, namely the frequency and the time domain approaches. Frequency domain techniques were historically quite dominant for several reasons. With the advent of computers and numerical techniques for field computation time domain methods became more and more favourable. Today both domains are about equally often employed for field computations. However, this situation should not be seen as a competition between methods but rather a successful combination for covering the entire range of field computations starting from static and low frequency fields up to ultra high frequency or wide band applications. After a general introduction into field simulation algorithms we will demonstrate that having both time and frequency domain solvers can be very advantageous when solving EMC problems.

Speaker Biography:

Thomas Weiland was born in 1951. He studied electrical engineering and mathematics at the Technische Hochschule, Darmstadt, Germany, and received the Ph.D. degree in 1977. As a Fellow at the European Institute for Nuclear Research (CERN), Switzerland, he began the first studies on EM simulation of relativistic particles in the time domain.

In 1983, at the Deutsches Elektronen Synchrotron (DESY) in Hamburg, he set up an international collaboration in order to develop the software package MAFIA for 3-D EM and charged particle simulation. Since 1989, he has been a Full Professor at the Technische Universität Darmstadt, as well as Director of the Institute for "Theorie Elektromagnetischer Felder" (TEMF). In 1992, he founded CST GmbH, which is recognized as the market leader in 3-D EM Time Domain technology.

Dr. Weiland was elected a Member of the Academy of Science and Literature, Mainz, in 1992. He received the Physics Prize from the German Physical Society for his contributions to the field of scientific computing and the U.S. Particle Accelerator School's Prize for Achievements in Accelerator Physics and Technology, both in 1986, the Leibniz Prize from the German Research Association in 1987. He won the Max Planck-Research Prize for International Collaboration in 1995 and was awarded the Philip Morris Research Prize in 1997 and an honorary professorship by the Tongji University, Shanghai, in 2004.

Keynote Speech

Title: Challenges In Real-World Emi/Emc Problems And Some Novel Techniques For Meeting Them

Prof. Raj. Mittra, *Electromagnetic Communication Laboratory, Penn State University, USA*
Date/ Time: Wednesday, 21 May 2008 / 09:25 – 10:10
Venue: Suntec Room 303

Abstract

This keynote presentation will cover the identification of some challenges in real-world EMI/EMC problems, which we have recently encountered in the process of designing complex systems for computers, communication and radar, that are beyond the capabilities of present day commercial computer codes. We then go on to describe some novel approaches for handling the problems for this type that are beyond the reach of codes that are typically designed to run on a single processor.

Speaker Biography

Raj. Mittra is Professor in the Electrical Engineering department of the Pennsylvania State University, and the Director of the *Electromagnetic Communication Laboratory*. Prior to joining Penn State he was a Professor in Electrical and Computer Engineering at the University of Illinois in Urbana Champaign. He is a Life Fellow of the IEEE, a Past-President of AP-S, and he has served as the Editor of the Transactions of the Antennas and Propagation Society. He won the Guggenheim Fellowship Award in 1965, the IEEE Centennial Medal in 1984, the IEEE Millennium medal in 2000, the IEEE/AP-S Distinguished Achievement Award in 2002 and the AP-S Chen-To Tai Distinguished Educator Award in 2004.

He has been a Visiting Professor at Oxford University, Oxford, England and at the Technical University of Denmark, Lyngby, Denmark. He has also served as the North American editor of the journal AEÜ.

He is the President of *RM Associates*, which is a consulting organization that provides services to industrial and governmental organizations, both in the U. S. and abroad. His professional interests include the areas of Communication Antenna Design, RF circuits, computational electromagnetics, electromagnetic modeling and simulation of electronic packages, EMC analysis, radar scattering, frequency selective surfaces, microwave and millimeter wave integrated circuits, and satellite antennas. He has published over 700 journal papers and more than 35 books or book chapters on various topics related to electromagnetics, antennas, microwaves and electronic packaging. He also has three patents on communication antennas to his credit. He has supervised 84 Ph.D. theses, 85 M.S. theses, and has mentored more than 50 postdocs and Visiting scholars. For the last 15 years he has directed, as well as lectured in, numerous short courses on Computational Electromagnetics, Electronic Packaging, Wireless antennas, both nationally and internationally.

Technical Sessions — Tuesday, 20 May 2008

Time	SUNTEC Room 303	SUNTEC Room 304	SUNTEC Room 305	SUNTEC Room 306
08:30 – 10:30	**Opening Ceremony/Keynote Speeches**	**Chair: Er-Ping Li**		
10:30 – 11:00		**Tea break**		
	ICEM-1: Integrated Circuit EMC Chairs: Dr. Sonia Ben Dhia and Dr. S. Yuan	**CEM-1: SS-FDTD and Applications** Chairs: Dr. Eng-Leong Tan and Prof. A. Elsherbeni	**EMI-3: Electromagnetic Interference** Chairs: Prof. W. Hoefer and Prof. J. Mao	**COM-1: EMC in Communication** Chairs: Prof. P. Leung and Dr. Y. Qi
11:00	TU-ICEM-1-1: **Towards an EMC Roadmap for Integrated Circuits (P244)** Mohamed Ramdani[2], Etienne Sicard[1], Sonia Ben Dhia[1] and Johan Catrysse[3] [1] *INSA University Toulouse, France* [2] *ESEO University Angers, France* [3] *KHBO Oostende, Belgium*	TU-CEM-1-1: **GEMS- A General Purpose Conformal FDTD Solver Tailored for Parallel Platforms (P303)** Raj Mittra[1], Wenhua Yu[1], Yongquan Lu[2] and Rui Lu[2] [1]*Penn State University, USA* [2]*Communication University of China, China*	TU-EMI-3-1: **Transmission Characteristics and EMP Response in Axisymmetric Multi-Stage Cascaded Waveguides (P134)** Jin-Jing Xu, Wen-Yan Yin and Jun-Fa Mao *Shanghai Jiao Tong University, China*	TU-COM-1-1: **An alternative TIS Measurement Method for RSSI Reporting Based Wireless Mobile Stations (invited) (P107)** Yihong Qi, Michael Certain, Perry Jarmuszwski and Qingmai Zhou *Research In Motion LTD, Canada*
11:20	TU-ICEM-1-2: **Evaluation of Power Supply Noise in CMOS and Low Noise Logic Cells** (P50)** Junfeng Zhou and Wim Dehaene *KULeuven ESAT-MICAS, Belgium*	TU-CEM-1-2: **MATLAB Graphical Interface for GPU Based FDTD Method (P194)** Matthew J. Inman and Atef Z. Elsherbeni *The University of Mississippi, United States*	TU-EMI-3-2 : **The Effects of Electrical Fast Transient (EFT)/Burst on ADSL Background Noise (P98)** W. R. Wan Abdullah[1], F. Mahtar[1], A. N. Zainal Abidin[1], M. Z. M. Jenu[2] and A. Ramli[1] [1]*Telekom Research and Development Sdn Bhd, Malaysia* [2]*Universiti Tun Hussein Onn Malaysia*	TU-COM-1-3: **Evaluation of Interference between MB-OFDM UWB and Wireless LAN Systems using a GTEM Cell** (P120)** Haruki Kamiya[1], Masashi Yamada[1], Shinobu Ishigami[2], Kaoru Gotoh[2], Yasushi Matsumoto[2] and Masamitsu Tokuda[1] [1]*Musashi Institute of Technology, Japan* [2]*National Institute of Information and Communications Technology, Japan*
11:40	TU-ICEM-1-3: **IC-EMC, a Demonstration Freeware for Predicting Electromagnetic Compatibility of Integrated Circuits (P82)** A. Boyer, E. Sicard and S. Ben Dhia *INSA de Toulouse, France*	TU-CEM-1-3: **An Improved Subgridding Method with the Second-Order Accurate FDTD Technique at the Dielectric Interface (P51)** Hai Ding[1,2] and Qing-Xin Chu[1] [1]*South China University of Technology, China* [2]*Xidian University, China*	TU-EMI-3-3: **A High Linearity Common-Gate Low Noise Amplifier for an UHF band Mobile RFID Receiver (P164)** Hyoung-Hwan Roh[1], Kyoung-Tae Park[1], Ha-Ryong Oh[1], Yeung-Rak Seong[1], Jun-Seok Park[1] and Min-Soo Kang[2] [1]*UCRC Lab, Kookmin University, South Korea* [2]*Hanyangcyber University*	TU-COM-1-4: **Study of Using Fractional Phantom Head Model on SAR Evaluation in Mobile Antenna Design (P173)** K. H. Chan, C. K. Tang, L. C. Fung, S. W. Leung and Y. M. Siu *City University of Hong Kong, China*
12:00	TU-ICEM-1-4: **Methods for Circuit-Based Automotive EMC Simulation Incorporating VHDL-AMS Models (P291)** Florian Frank[1], Martin L. Zitzmann[2], Gernot Steinmair[2] and Robert Weigel[1] [1]*University of Erlangen-Nuremberg, Germany* [2]*BMW Group, 80788 Munich, Germany*	TU-CEM-1-6: **Corrected Impulse Invariance Method for Dispersive Media Using FDTD (P210)** Eng Leong Tan and Ding Yu Heh *NTU, Singapore*	TU-EMI-3-4: **Numerical Characterization and Evaluation of ESD Induced Field and Coupling on Interconnection Cable (P308)** Xianke Gao and Erping Li *Electromagnetics and Electronics System Lab., A-STAR IHPC, Singapore*	TU-COM-1-5: **Modeling of Radio Frequency Electromagnetic Disturbances in Power Line Communication Networks (P305)** Teng Seng Pang, Ping Lam So and Kye Yak See *Nanyang Technological University, Singapore*

Technical Sessions — Tuesday, 20 May 2008

Time	SUNTEC Room 303	SUNTEC Room 304	SUNTEC Room 305	SUNTEC Room 306
	ICEM-1: Integrated Circuit EMC (Cont'd) Chairs: Dr. Sonia Ben Dhia and Dr. S. Yuan	**CEM-1: SS-FDTD and Applications (Cont'd)** Chairs: Dr Iftikhar Ahmed and Prof. Q. X. Chu	**BIO-1: SS- Radiofrequency Radiation Dosimetry** Chairs: Dr. Akimasa Hirata and Prof. O. Fujiwara	**EMI-1: SS- ESD and Transient** Chairs: Dr. Ken Kawamata and Dr. K. M. Soohoo
13:20	TU-ICEM-1-5 : **VLSI IC Emission Models for System Simulation** Thomas Steinecke[1], Dirk Hesidenz[1] and Andreas Gstoettner[2] *[1]Infineon Technologies AG, Germany* *[2]University of Erlangen-Nuremberg Germany*	TU-CEM-1-5 : **The Stability Analysis of the Three-dimensional LOD-FDTD Method** Iftikhar Ahmed, Eng-Kee Chua and Er-Ping Li *Institute of High Performance Computing Singapore*	TU-BIO-1-1: **Gain Calibration in Near-Field Region of Antenna in Tissue-Equivalent Liquid for SAR Assessment** Nozomu Ishii[1,2], Ken-ichi Sato[3], Lira Hamada[2] and Soichi Watanabe[2] *[1]Niigata University, Japan* *[2]National Institute of Information and Communications Technology, Japan* *[3]NTT Advanced Technology, Japan*	TU-EMI-1-1 : **Case Study of Product Defects Found by Air Discharge Mode ESD but Missed by Contact ESD (Invited)** Kowk M. Soohoo and Michael J. Wielgos *IBM Corp., United States*
13:40	TU-ICEM-1-6 : **Dynamic, Nonlinear and Passive Immunity Model of Microcontroller for Time Domain Simulation** Tao Su[1], Markus Unger[1], Thomas Steinecke[1] and Robert Weigel[2] *[1]Infineon Technologies AG, Germany* *[2]Insititute of Technical Electronics University of Erlangen-Nuernberg, Germany*	TU-CEM-1-7 : **A New Conformal Technique for FDTD (2, 4) Scheme for Modeling Perfectly Conducting Composites** Jin Wang[1], Qi-Feng Liu[1], Wen-Yan Yin[1], Jun-Fa Mao[1] and Qing-Huo Liu[2] *[1]Shanghai Jiao Tong University, China* *[2]Duke University, U.S.A*	TU-BIO-1-2 : **A SAR-Probe Calibration System using Reference Dipole Antenna in Tissue-Equivalent Liquid** Lira Hamada[1], Kenichi Sato[2], Nozomu Ishii[1,3] and Soichi Watanabe[1] *[1]National Institute of Information and Communications Technology, Japan* *[2]NTT Advanced Technology, Japan* *[3]Niigata University, Japan*	TU-EMI-1-2 : **Relationship between Breakdown Field and Radiated Electromagnetic field Strength due to Low Voltage ESD below 1kV** K. Kawamata[1], S. Minegishi[2], A. Haga[2] and O. Fujiwara[3] *[1]Hachinohe Institute of Technology, Japan* *[2]Tohoku Gakuin University, Japan* *[3]Nagoya Institute of Technology, Japan*
14:00	TU-ICEM-1-7 : **Modelling of the Susceptibility of 90 nm Input Output Buffer** A. Boyer[1], M. Fer[2], L. Courau[2], E. Sicard[1] and S. Ben Dhia[1] *[1]INSA de Toulouse, France* *[2]ST Microelectronics, France*	TU-CEM-1-8: **Split-Step Finite-Difference Time-Domain Method with Fourth Order Accuracy in Time** Ding Yu Heh and Eng Leong Tan *NTU, Singapore*	TU-BIO-1-3: **Novel Specific Absorption Rate Measurement Techniques** Teruo Onishi, Katsuki Kiminami and Takahiro Iyama *NTT DoCoMo Inc, Japan*	TU-EMI-1-3 : **Threshold Point of Short-gap Electrostatic Discharge and Its Mechanism Analysis** Fangming Ruan[1,2], Yougang Gao[2] and Dan Shi[2] *[1]Guizhou Normal University, China* *[2]Beijing University of Post & Telecommunication, China*
14:20	TU-ICEM-1-8 : **Automated Extraction of the Passive Distribution Network of an Integrated Circuit for the Assessment of Conducted Electromagnetic Emission** Jérôme Cordi[1,2,3], Ali Alaeldine[1,2], Jean-Luc Levant[1], Richard Perdriau[2], Mohamed Ramdani[2] and Patrice Pinel[1] *[1]ATMEL NANTES, France, [2]ESEO – LATTIS, France, [3]IETR – INSA, France*	TU-CEM-1-9: **Electromagnetic Media in FDTD-PIC** Lars D. Ludeking and Andrew J. Woods *ATK Mission Research and Technical Services, United States*	TU-BIO-1-4: **SAR Value Variation by Ambient Temperature of the SAR Measurement System** Yoon Myoung Gimm *Dankook University, South Korea*	TU-EMI-1-4: **Dependence of Breakdown Fields on Charge Voltages for Human ESD** Yoshinori Taka and Osamu Fujiwara *Nagoya Institute of Technology, Japan*
14:40	TU-ICEM-1-9 : **Evaluation Environment of PCI Peripherals Power Integrity and The Improvement** Shih-Yi Yuan, Chun-Wei Huang and Shry-Sann Liao *Feng Chia University, Taiwan*	TU-CEM-1-10: **Time Domain Integral Equation Methods for Analysis of Transient Scattering by Composite Metallic and Dielectric Objects** G. H. Zhang and M. Y. Xia *Peking University, China*	TU-BIO-1-5 : **Estimations for Implantable Cardiac Pacemakers EMI from Cellular Radios in Narrow Space Multi Reflection Environments** Takashi Hikage[1], Louis-Ray Harris[1], Toshio Nojima[1], Simba Ally[2] and Soichi Watanabe[2] *[1] Hokkaido University, Japan* *[2] National Institute of Information and Communications Technology, Japan*	TU-EMI-1-5: **Verification of Spark Resistance Formula for Human ESD** Yoshinori Taka and Osamu Fujiwara *Nagoya Institute of Technology, Japan*
15:00			TU-BIO-1-6 : **Effect of SAR Average Mass on Correlation with Temperature Elevation in Japanese Head Model** Akimasa hirata, Kazuyuki Shirai and Osamu Fujiwara *Nagoya Institute of Technology, Japan*	TU-EMI-1-6 : **ESD-Sensitive LNA Design** Xin Wang[1], Lin Lin[1], Albert Wang[1], Xiaokang Guan[2], Guang Chen[2], Hongyi Chen[3], Yumei Zhou[4], Hainan Liu[4], Li-Wu Yang[5] and Bin Zhao[6] *[1]University of California, USA; [2]Illinois Institute of Technology, USA; [3]Tsinghua University, China; [4]Inst. of Microelectronics, CAS; [5]SMIC, Shanghai, China* *[6]Freescale Semiconductor, USA*

Technical Sessions — Tuesday, 20 May 2008

Time	SUNTEC Room 303	SUNTEC Room 304	SUNTEC Room 305	SUNTEC Room 306
	SEM-1: PCB EMC Chairs: Prof. J. Drewniak and Dr. Enxiao Liu	**CEM-2: SS-EM Modeling of Distributed Systems** Chairs: Dr Florian Krug and Dr. Sebastian Kramer	**BIO-2: Biomedical Electromagnetics** Chairs: Prof Jianqing Wang and Prof. M. Okoniewski	**Ligh-1:SS-Lightning and Its Effects** Chairs: Prof. Vlad Rakov and Prof. Farhad Rachidi
15:40	TU-SEM-1-1 : **Predicting Common Mode Radiation of Power Bus Structure Excited by IC's Switching Current (Invited)** Toshio Sudo *Shibaura Institute of Technology, Japan*	TU-CEM-2-1: **Time Domain Modelling and Simulation of Complex Systems** Wolfgang J. R. Hoefer *University of Victoria, Canada*	TU-BIO-2-1 : **Dosimetric Implication of Exposure of Human Eye to Ultra-Wideband Electromagnetic Pulses** Neven Simicevic *Louisiana Tech University, United States*	TU-Ligh-1-1 : **An Experimental Study of Electric Field Pulses Produced by Cloud and Ground Lightning Discharges (Invited)** Amitabh Nag and Vladimir A. Rakov *University of Florida, United States*
16:00	TU-SEM-1-2 : **The Effects on SI and EMI for Differential Coupled Microstrip Lines over LPC-EBG Power/Ground Planes** Cheng-Hung Shih[1], Guang-Hwa Shiue[2], Tzong-Lin Wu[1] and Ruey-Beei Wu[1] [1]*National Taiwan University, Taiwan* [2]*Chung Yuan Christian University, Taiwan*	TU-CEM-2-2 : **Conformal Perfectly Matched Absorber for Finite-Volume Time-Domain Simulations** Dirk Baumann[1], Christophe Fumeaux[2], Rudiger Vahldieck[2] and Erping Li[1] [1]*IHPC, A*STAR, Singapore* [2]*ETH Zurich, Switzerland*	TU-BIO-2-2 : **SA/SAR Analysis for Multiple UWB Pulse Exposure** Qiong Wang and Jianqing Wang *Nagoya Institute of Technology, Japan*	TU-Ligh-1-2 : **Electric and Magnetic Fields at Very Close Range from a Lightning Strike to a Tall Object (Invited)** Abbas Mosaddeghi[1], Davide Pavanello[1], Farhad Rachidi[1] and Marcos Rubinstein[2] [1]*Swiss Federal Institute of Technology, Switzerland* [2]*University of Applied Sciences, Switzerland*
16:20	TU-SEM-1-3 : **Impact of Partial EBG PDN on PI, SI and Lumped Model-Based Correlation** Junho Lee[1], Hyungdong Lee[1], Kunwoo Park[1], Byongtae Chung[1], Jaemin Kim[2] and Joungho Kim[2] [1]*Hynix Semiconductor Inc., South Korea* [2]*KAIST, South Korea*	TU-CEM-2-3 : **Use of a Fiber-Optic Sensor System to Review Distributed Magnetic Field Simulation of a Wind Turbine** Sebastian G.M. Kramer[1,2], Fernando Puente Leon[2] and Bastian Lewke[2] [1]*GE Global Research, Germany* [2]*TU Muenchen, Germany*	TU-BIO-2-3 : **A Study of Dielectric Properties of Fatty, Malignant and Fibro-Glandular Tissues in Female Human Breast** Taehong Kim[1], Junhurk Oh[1], Bongseok Kim[2], Jongmoon Lee[3], Soonik Jeon[3] and Jeongki Pack[1] [1]*Chungnam National University, South Korea* [2]*AR Technology, South Korea* [3]*ETRI, South Korea*	TU-Ligh-1-3: **Electromagnetic Models of Lightning (Invited)** Yoshihiro Baba[1] and Vladimir A. Rakov[2] [1]*Doshisha University, Japan* [2]*University of Florida, USA*
16:40	TU-SEM-1-4 : **Investigation on the Ground Loop Coupling by Simulation Tools based on the Partial Inductance Concept** Spartaco Caniggia[1] and Francescaromana Maradei[2] [1]*EMC Consultant, Italy* [2]*Sapienza University of Rome, Italy*	TU-CEM-2-4 : **MoM Based EMI Analysis on Large Wind Turbines** B. Lewke[1], J. Kindersberger[1], J. Stromberger[2], F. Krug[2] and S. Krämer[2] [1]*Technical University of Munich, Germany* [2]*GE Global Research, Germany*	TU-BIO-2-4 : **Variation of Whole Body Averaged Phantom Specific Absorption Rate (SAR) in Seven Different 1.5 T MR Systems** Wolfgang Kainz[1], Florian Fidler[2], Jean Bobgan[3], Gregor Schaefers[4], Roger Luechinger[5], Nikolaus Szeverenyi[6] and Steven Wedan[7] [1]*FDA, CDRH, USA;* [2]*Research Center MRB, Germany* [3]*Boston Scientific Corporation, USA;* [4]*MR:comp GmbH, Germany* [5]*University and ETH Zurich, Switzerland* [6]*SUNY Upstate Medical University, USA,* [7]*Imricor Medical Systems, USA*	TU-Ligh-1-5 : **Numerical Electromagnetic Analysis of Lightning Protection System over Lossy Ground** Shunchao Wang, Jinliang He Bo Zhang, Shuiming Chen and Zhanqing Yu *Tsinghua University, China*
17:00	TU-SEM-1-5 : **Radiated Emission Effects from Multiple Via Stimulation Within a Printed Circuit Board** Mark I. Montrose[1] and Enxiao Liu[2] [1]*Montrose Compliance Services, Inc., USA* [2]*IHPC, Singapore*	TU-CEM-2-5 : **Two-step Order Reduction of IC Conducted Emission Models** Lj. Radic-Weissenfeld[1,2], S. Ludwig[1,2], W. Mathis[1] and W. John[2] [1]*Leibniz University of Hannover, Germany* [2]*Fraunhofer IZM, Germany*	TU-BIO-2-5 : **Monitoring of Cardio-Pulmonary Activity With UWB Radar: A Circuital Model** Stefano Pisa, Paolo Bernardi, Marta Cavagnaro, Erika Pittella and Emanuele Piuzzi *Sapienza University of Rome, Italy*	TU-Ligh-1-6 : **Surge Protection Performance and Effect for Rectifier** A. H. Samad, M. R. Hassan and V. Ellapan *TMR&D Sdh. Bhd., Malaysia*
17:20	TU-SEM-1-6 : **Practical Analysis on 20H Rule for PCB** Shinichi Ikami and Akihisa Sakurai *IBM Japan, Japan*	TU-CEM-2-6 : **Accurate Wideband Evaluation of the Shielding Effectiveness of Complex Enclosures Using an Asynchronous Parallel NSPWMLFMA** Joris Peeters, Ignace Bogaert and Jan Fostier, *Femke Olyslager, Ghent University, Belgium*	TU-BIO-2-7 : **Electrocardiogram Registration of the Patient Placed in the Electroconductive Liquid** Nikolay V. Kinsht[1], Dmitry N. Kinsht[2], Natalia N. Petrun'ko[1] [1]*Far East Branch of Russian Academy, Russia* [2]*1st Novosibirsk Regional Hospital, Russia*	TU-Ligh-1-7 : **Effect of Tortuosity of Lightning Stroke Path on Lightning Electromagnetic Fields** Darwin Kok Lian Chia[1] and Ah Choy Liew[2] [1]*Energy Market Authority, Singapore* [2]*National University of Singapore, Singapore*

Open Forum-1: Poster Session 1-Student Paper Prize Competition, Tuesday, 20 May 2008, 13:20 – 14:20

Chairs: Dr. W. Radasky and Prof. L. W. Li, Venue: *SUNTEC Level 3 Concourse (Exhibition Area)*

TU-ICEM-1-2 **Evaluation of Power Supply Noise in CMOS and Low Noise Logic Cells**
Junfeng Zhou and Wim Dehaene
ESAT-MICAS, Katholieke University Leuven, Belgium

TU-COM-1-3 **Evaluation of Interference between MB-OFDM UWB and Wireless LAN Systems using a GTEM Cell**
Haruki Kamiya[1], Masashi Yamada[1], Shinobu Ishigami[2], Kaoru Gotoh[2], Yasushi Matsumoto[2] and Masamitsu Tokuda[1]
[1]*Musashi Institute of Technology, Japan*
[2]*National Institute of Information and Communications Technology, Japan*

TH-CEM-6-2 **Application of B-Spline Temporal Basis Function in Time-Domain Finite Element Method for Three-Dimensional EM Radiation Problem**
Xia Wu and Lezhu Zhou
Peking University, China

TH-CEM-6-3 **Time Domain Discontinuous Galerkin Method with Efficient Modelling of Boundary Conditions for Simulations of Electromagnetic Wave Propagation**
N. Godel, S. Lange and M. Clemens
Helmut-Schmidt-University, University of the Federal Armed Forces Hamburg, Germany

TH-CEM-6-4 **Wideband Transient Response of Irregular Conductive Objects Illuminated by a High-Power EMP**
Zhi-Jie Zhou, Ming-Feng Xue, Wen-Yan Yin and Jun-Fa Mao
Shanghai Jiao Tong University, China

WE-SEM-2-2 **An Estimation Method of Chip Level Power Distribution Network Inductance Using Full Wave Simulation and Segmentation Method**
Jaemin Kim, Jongjoo Shim, Woojin Lee, Jun So Pak and Joungho Kim
KAIST, South Korea

TH-SYS-1-5 **EM Radiation through Aperture of Metallic Enclosure with a PCB inside**
Shogo Miyata, Yoshiki Kayano and Hiroshi Inoue
Akita University, Japan

WE-HPEM-2-1 **Performance Optimization Aspects of Common Mode Chokes**
Anne Roc'h[1], Hans Bersgma[3], Dongsheng Zhao[2], Braham Ferreira[2] and Frank Leferink[1,3]
[1]*University of Twente, Netherlands*
[2]*Technical University Delft, Netherlands*
[3]*Thales Netherlands, Netherlands*

WE-HPEM-2-2 **Conducted Interference Immunity Test to High-Speed Power Line Communication System**
Satoshi Hosoya, Masamitsu Tokuda and Takashi Matsuo
Musashi Institute of Technology, Japan

WE-HPEM-2-5 **A Modeling Method on Electromagnetic Interference Coupling Path of Digital Relay in Power System**
Bo Niu, Zhenxiang Song, YingSang Geng, Jianhua Wang and Jing Wang
Xi'an Jiaotong University, China

TH-HPEM-3-3 **Analysis on Switching Transient EMI in +-500-kV HVDC Converter Stations**
Zhanqing Yu[1], Jinliang He1, Rong Zeng[1], Wei Li[1], Bo Zhang[1], Jie Zhao[2] and Chuang Fu[2]
[1]*Tsinghua University, China*
[2]*China Southern Power Grid Co. Ltd, China*

WE-Meas-1-5 **An Electro-Optic Integrated Sensor for Lightning Impulse Electric Field Measurement**
Ben Niu, Rong Zeng, Yinan Geng, Jinliang He and Huan Li
Tsinghua University, Chin

TH-Meas-3-4 **Induction Characteristic of a Solar Cell to Radiated Electromagnetic Disturbances**
Mariko Tomisawa and Masamitsu Tokuda
Musashi Institute of Technology, Japan

TH-Meas-4-3 **A New Simultaneous Conducted Electromagnetic Interference Measuring and Testing Device**
D. Sakulhirirak[1], V. Tarateeraseth[1], W. Khan-ngern[1] and N. Yoothanom[2]
[1]*King Mongkut's Institute of Technology Ladkrabang, Thailand*
[2]*Sripatum University, Thailand*

WE-ENV-1-4 **Radiation Leakage from Shielded Cables by Pigtail Effect**
Zheng Zhong, Ying Wang and Ban Leong Ooi
National University of Singapore, Singapore

TH-SEM-4-4 **Impacts of Bends and Ground Return Vias on Interconnects For High Speed GHz Designs**
Weng-Yew Chang, Richard[1], Kye-Yak See[2] and Yang-Long Tan[2]
[1]*DSO National Laboratories, Singapore;* [2]*Nanyang Technological University, Singapore*

TH-SEM-4-3 **Substrate-Geometry Aware 2-Port Modeling for Surface-Mount Passive Components**
Koh Yamanaga[1,2], Takashi Sato[1] and Kazuya Masu[1]
[1]*Tokyo Institute of Technology, Japan;* [2]*Murata Manufacturing Co., Ltd, Japan*

The winners of the Student Paper Prize Competition are invited to join the Award banquet Dinner for award presentation.

Technical Sessions — Wednesday, 21 May 2008

Time	SUNTEC Room 303	SUNTEC Room 304	SUNTEC Room 305	SUNTEC Room 306
8:40	**Plenary Sessions: Chair: Zhongxiang Shen** **EMC Simulations in Time and Frequency Domain,** By Prof. Dr.-Ing. Thomas Weiland, *Technical University of Darmstadt, Germany* **Challenges In Real-World EMI/EMC Problems and Some Novel Techniques for Meeting Them,** Prof. Raj Mittra, *Electromagnetic Communication Laboratory, Penn State University, USA*			
	ICEM-2: Integrated Circuit EMC Chairs: Dr. T. Steinecke and Dr. A. Boyer	**HPEM-1: SS-High Power EMC 1** Chairs: Dr. William A. Radasky	**MEAS-1: Measurement Technique 1** Chairs: Dr. Perry Wilson and Mr. Martin Wiles	**AP-1: Antenna for Wireless Communications** Chairs: Prof. Yilong Lu and Mr. Elya Joffe
10:40	WE-ICEM-1-10: **IC Emission Spectrum Drifts after Burn-in Cycles** S. Ben Dhia[1], A. C. Ndoye[1], A. Boyer[1], L. Guillot[2] and B. Vrignon[2] *[1]INSA Toulouse, France* *[2]Freescale Semiconducteurs, France*	WE-HPEM-1-1: **A Comparison Between HEMP and HPEM Parameters, Effects and Mitigation Methods** Michel Ianoz *Swiss Federal Institute of Technology of Lausanne, Switzerland*	WE-Meas-1-1: **Experience with the RMS-Average Detector** Jens Medler *Rohde & Schwarz GmbH & Co. KG, Germany*	WE-AP-1-1: **Multipath Fading Measurement on the Circularly Propagated UHF RFID Reader Antennas in a Practical Area** Jin-Woo Jung[1], Ji-Hun Hwang[2], Young-Joo Moon[1], Ho-Kil Kwak[1], Hyoung-Hwan Roh[1], Jun-Seok Park[1] and Min-Soo Kang[2] *[1]Kookmin University, South Korea* *[2]Hanyangcyber University, South Korea*
11:00	WE-ICEM-1-11: **Low Cost DTV-SoC System Implementation Using Integrated Signal Integrity Analysis** Tai Sik Yang, Yong Seok Kang, Tae Lim Song, Yun Ra, Seok Soo Lee and Woo Hyun PaiK *LG Electronics, South Korea*	WE-HPEM-1-2: **Propagation Ability of UWB Transients through Junctions of Low-voltage Power Installation Cable** Daniel Månsson[1], Rajeev Thottappillil[1] and Mats Bäckström[2] *[1]Uppsala University, Sweden* *[2]Saab Communications, Sweden*	WE-Meas-1-2: **Better Measurement Uncertainty Using Fully Digital Receivers in EMC Emission Tests** Domenico Festa[1], Roberto Grego[2] and Michele Zingarelli[2] *[1]IBD, Italy* *[2]Narda Safety Test Solutions, Italy*	WE-AP-1-2: **Characterization of Wi-Fi Antenna System on a Remote Controlled Helicopter** Yee Hui Lee, Yu Song Meng and Ooi Nguan Tay *Nanyang Technological University, Singapore*
11:20	WE-ICEM-1-12: **Application of GTEM Cells for IC EMC Testing** Ralf Heinrich[1], Viki Muellerwiebus[2], Andreas Lange[1], Bernd Deutschmann[2], Uwe Karsten[1] and Frank Klotz[2] *[1]Teseq GmbH, Germany* *[2]Infineon Technologies AG, Germany*	WE-HPEM-1-3: **The Probabilistic Analysis of Immunity of a Data Transmission Channel to the Influence of Periodically Repeating Voltage Pulses** Yuri V. Parfenov[1], Ira Kohlberg[2], William A. Radasky[3], Boris A. Titov[1] and Leonid N. Zdoukhov[1] *[1]AIHT, RAS, Russia* *[2]Kohlberg Associates, Inc., USA* *[3]Metatech Corp., USA*	WE-Meas-1-3: **Automation of Radiated Emission Measurements with an Ultra-fast Time-domain EMI Measurement System** Stephan Braun, Arnd Frech, Hassan Hani Slim and Peter Russer *TU Munich, Germany*	WE-AP-1-3: **A Microstrip Antenna for 60-GHz CMOS Transceiver System in a Package** G. Felic and E. Skafidas *University of Melbourne, Australia*
11:40	WE-ICEM-1-13: **Spread Spectrum Clocking Applied to Charge Pump for Conducted Emission Improvement in Automotive** Franck Galtie[1] and Christian Marot[2] *[1]Continental, France* *[2]EADS IW, France*	WE-HPEM-1-4: **Pulse Testing of Network Interface Cards for Upset and Damage** Edward B. Savage, William A. Radasky, Kenneth Smith and Michael Madrid *Metatech Corporation, United States*	WE-Meas-1-4: **The Impact of Recent Changes to CISPR Standards on EMC Anechoic Chambers** Martin A.K. Wiles *ETS-Lindgren Ltd., United Kingdom*	WE-AP-1-4: **A Cylindrical Barium Strontium Titanate (BST) Dielectric Resonator Antenna for 5.0 GHz Wireless LAN Application** A. A. H. Azremi, N. A. Saidatul, P. J. Soh, M. A. Idris and N. Mahmed *University Malaysia Perlis, Malaysia*
12:00	WE-ICEM-1-14: **Analysis of DRAM EMI Dependence on data Pattern and Power Delivery Design Using a Near-Field EMI Scanner** Pilsoo Lee, Junho Lee, Dae-kun Yoon, Jaehoon Choi and Sungjoo Hong *Hynix Semiconductor Inc., South Korea*	WE-HPEM-1-5: **Response of Electrified Railway Facilities to Intentional Electromagnetic Interference: Review of Research at Uppsala University** Rajeev Thottappillil[1], Daniel Månsson[1] and Mats Bäckström[2] *[1]Uppsala University, Sweden* *[2]Saab Communication, Sweden*	WE-Meas-1-5: **An Electro-Optic Integrated Sensor for Lightning Impulse Electric Field Measurement** Ben Niu, Rong Zeng, Yinan Geng, Jinliang He and Huan Li *Tsinghua University, China*	WE-AP-1-5: **Pattern Descriptors for Baseband-Pulse-Antenna** Xingjun Zhang, Wanzheng Lu and Yuesheng Zeng *Air Force Engineering University, China*

Open Forum-2: Poster Session 2, Wednesday, 21 May 2008, 10:20 – 12:20

Chairs: Dr. Klaus Kronhne and Dr. Xingchang Wei, Venue: *SUNTEC Level 3 Concourse (Exhibition Area)*

WE-OF-2-1 10:20 –12:20
Electrothermal Characterization of TFTs under the Impact of an EMP
Rong-Rong Xu, Wen-Yan Yin and Jun-Fa Mao
Shanghai Jiao Tong University, China

WE-OF-2-2 10:20 – 12:20
FDTD Modeling of Arbitrary Linear Lumped Networks and Practical Active Devices
Zhi-Hui Chen and Qing-Xin Chu
South China University of Technology, China

WE-OF-2-3 10:20 – 12:20
Evaluation of Ferrite Core EMI Suppression under Realistic Working Condition
Bo Hu[1], Kye Yak See[1] and Weng_Yew Chang Richard[2]
[1]*Nanyang Technological University, Singapore*
[2]*DSO National Laboratories, Singapore*

WE-OF-2-4 10:20- – 2:20
Statistical Analysis of Lightning Transients in Grounding Grids
E. Amiri, K. Sheshyekani, A. Shoory, S. H. H. Sadeghi and R. Moini
Amirkabir University of Technology, Iran

WE-OF-2-5 10:20 – 12:20
Normality Test and Characteristic Statistic Analysis of Transient Electromagnetic Disturbance
Jingfang Su[1], Weidong Zhang[1], Xiang Cui[1], Jie Zhao[2], Xiaolin Li[2] and Qi Wang[2]
[1]*North China Electric Power University, China*
[2]*China Southern Power Grid Co., Ltd., China*

WE-OF-2-6 10:20 – 12:20
Electromagnetic Coupling on Airborne Structures and Systems using NEC
Ying Wang, Zhong Zheng and B. L. Ooi
National University of Singapore, Singapore

WE-OF-2-7 10:20 – 12:20
Uncertainty Analysis Framework for RF Measurement
James Cai[1], Qinrong Fu[1], Erping Li[1], Michael Ong[2] and Kahheng Lee[2]
[1]*Institute of High Performance Computing, Singapore*
[2] *Rohde & Schwarz Systems and Communications Asia Pte Ltd, Singapore*

WE-OF-2-8 10:20 – 12:20
Analysis of the Electromagnetic Environment under the Lead-in after Extending a New Main Transformer in High Voltage Substation
Zhaonan Luo, Shuying Kang, Lei Qi, Xiang Cui and Jianhong Hao
North China Electric Power University, China

WE-OF-2-9 10:20 – 12:20
The Study of Electric Field Effect to Bending on the Growth of the Primary Root of Rice
T. Rotcharoen[1], W. Khan-ngern[2] and S. Nitta[3]
[1]*Pibulsongkram Rajabhat University, Thailand*
[2]*King Mongkut's Institute of Technology Ladkrabang, Thailand*
[3]*Salesian Polytechnic, Japan*

WE-OF-2-10 10:20 – 12:20
Coupling between Arbitrarily Oriented Open-ended Parallel-palte Waveguides
Wang Ying, Zhong Zheng, S. L. Tan and B. L. Ooi
National University of Singapore, Singapore

WE-OF-2-11 10:20 – 12:20
Research on Protecting Distance Between AM Receiving Stations and UHV AC TL
GAN Zhe-yuan[1], Liu Xingfa, ZHOU Wen-jun[1] and WU Xiong[2]
[1] *Wuhan University, China*
[2] *Wuhan High Voltage Research Institute (WHVRI) of SGCC, China*

WE-OF-2-12 10:20 – 12:20
Assessment and Optimal Passive-Loop Mitigation of Power Lines' Magnetic Fields
Mohamed M. Saied
Kuwait University, Kuwait

WE-OF-2-14 10:20 – 12:20
Power Line Filters: What's Wrong and How We Can Fix 'Em
Herbert Blum
Schurter AG, Switzerland

WE-OF-2-15 10:20 – 12:20
A Concurrent Multi-Band Low-Noise Amplifier for WLAN/WiMAX Applications
Chih-Yuan Kao and Jeng-Rern Yang
Yuan-Ze University, Taiwan R.O.C.

WE-OF-2-16 10:20 – 12:20
Effect of Reflection Induced Crosstalk from a High Frequency Noise Source
Joseph Kho, Man On Wong, Chooi Ian Loh and Chee Seong Fong
Altera Corporation (M) Sdn. Bhd, Malaysia

WE-OF-2-17 10:20 – 12:20
Experimental Validation of Simulated Interference Effects from UWB Systems to a Narrowband QPSK Digital Transmission System
Yosuke Iuchi [1], Atsushi Tomiki [2] and Akehiko Kobayashi [1]
[1] *Tokyo Denki University, Japan*
[2] *Institute of Space and Astronautical Science, Japan*

TU-BIO-2-6 : **The Effect Of MRET Activated Water On Enhanced Tumor Resistance In Oncology**
Igor V. Smirnov
Global Quantech, Inc, United States

Technical Sessions — Wednesday, 21 May 2008

Time	SUNTEC Room 303	SUNTEC Room 304	SUNTEC Room 305	SUNTEC Room 306
	SEM-2: SS-Power Integrity and EMC for Packages Chairs: Prof. Tzong-Lin Wu and Prof. Joungho Kim	**CEM-3: EM Modeling for Complex Problems** Chairs: Prof. F. Olyslager and Dr. C. F. Wang	**MEAS-2: SS-Reverberation chamber** Chairs: Dr. Frank Leferink and Dr. Koh Wee Jin	**AP-2: Wide-band Antenna** Chairs: Prof. W. Y. Yin and Dr. Z. N. Chen
13:20	WE-SEM-2-1: **Modeling Multilayer Power Distribution Network by Systematically Incorporating Via and Cavity Models** Yaojiang Zhang, Francesco De Paulis and Jun Fan *Missouri University of Science and Technology, USA*	WE-CEM-3-1: **Feature Selected Validation and Verification (FSVV) of CEM Code Predictions Using IR Thermal Images of EM Fields (Invited)** Andrew Drozd[1], Irina Kasperovich[1], John Norgard[2] and Randy Musselman[2] [1]*ANDRO Computational Solutions, USA* [2]*US Air Force Academy, USA*	WE-Meas-2-2 : **In-situ High Field Strength Testing using a Transportable Reverberation Chamber** Frank Leferink *University of Twente – THALES Nederland, Netherlands*	WE-AP-2-1 : **Radiation Characteristic of Mono-Conical Antenna for Wideband Electromagnetic Field Generation** Hideki Abe[1], Masamitsu Tokuda[1] and Shinobu IShigaml[2] [1]*Musashi Institute of Technology, Japan* [2]*National Institute of Information and Communications Technology, Japan*
13:40	WE-SEM-2-2: **An Estimation Method of Chip Level Power Distribution Network Inductance using Full Wave Simulation and Segmentation Method**** Jaemin Kim, Jongjoo Shim, Woojin Lee, Jun So Pak and Joungho Kim *KAIST, South Korea*	WE-CEM-3-2: **Recent Advances in Fast Multipole Methods to Simulate Ever Larger tnd More Complex Structures (Invited)** Femke Olyslager[1], Kristof Cools[1], Ignace Bogaert[1], Jan Fostier[1], Joris Peeters[1], Francesco P. Andriulli[2] and Eric Michielssen[2] [1]*Ghent University, Belgium* [2] *University of Michigan, Ann Arbor, Michigan*	WE-Meas-2-3: **Shielding Effectiveness Measurement Conducted in a Reverberation Chamber and in a GTEM Cell** Koh Wee Jin, Tai Yeow Kwang Roland and Ng Yew Seng *DSO, Singapore*	WE-AP-2-2 : **Input Impedance Adjustment on UWB Antenna For SFCW-GPR Application** A. Adya Pramudita[1], Adit Kurniawan[2] and A. B. Suksmono[2] [1]*Atmajaya Catholic University, Indonesia* [2]*STEI-Bandung Institute of Technology, Indonesia*
14:00	WE-SEM-2-3: **An Approach for Reducing Common-Mode Current on Electronic Control Units Using Optimization Algorithm** Kohei Shinomiya[1], Hideki Asai[1] and Takanori Unou[2] [1]*Shizuoka University, Japan* [2]*DENSO Corporation, Japan*	WE-CEM-3-3: **Analysis of High Density and High Speed Magnetic Recording Processes (Invited)** Z. J. Liu[1], K. P. Tan[1], S. H. Zhang[1], B. J. Chen[1] and E. P. Li[2] [1] *Data Storage Institute, Singapore* [2] *Institute of High Performance Computing, Singapore*	WE-Meas-2-4: **Introduction of Randomness in Deterministic Descriptions of Reverberation Chambers** Ramiro Serra and Flavio Canavero *Politecnico di Torino, Italy*	WE-AP-2-3: **Transient Responses of Fractal Dipole Antennas Excited by an EMP (** Ming-Feng Xue and Wen-Yan Yin *Shanghai Jiao Tong University, China*
14:20	WE-SEM-2-4: **Efficient Modelling of the Slot in the Parallel-Plate Structure in PCB/Packaging using the Closed-form Green's Function** Sungtek Kahng *Univ. of Incheon, South Korea*	WE-CEM-3-4: **Temasek Laboratories Efficient Full-Wave EMC (TLEFEMC V1.0) Code for Analysis of Antennas Mounted on Large and Complex Platform: Introduction, Validation, and Application** Chao-Fu Wang[1], Xiao-Chun Nie[1], Ning Yuan[1], Yeow-Beng Gan[1], Bee Hua Tay[2] and Yeow Kwang Tai[2] [1]*Temasek Laboratories @ NUS, Singapore* [2]*DSO National Laboratories, Singapore*	WE-Meas-2-6: **Universal Electric and Magnetic Fields Analyzer System** Yong Cheh Ho, David Pommerenke and Tun Li *Missouri University Science & Technology, USA*	WE-AP-2-4: **A Metallic Cone-Sphere Inserted Conical Horn for High-Performance Applications** Chin Yeng Tan and Krishnasamy T. Selvan *The University of Nottingham Malaysia Campus, Malaysia*
14:40	WE-SEM-2-5: **Wideband Low Power Distribution Network Impedance of High Chip Density Package using 3-D Stacked Through Silicon Vias** Jun So Pak, Chunghyun Ryu, Jaemin Kim, Yujeong Shim, Gawon Kim and Joungho Kim *KAIST, South Korea*	WE-CEM-3-5: **Three-Dimensional Microwave Tomography: Waveform Diversity and Distributed Sensors for Detecting and Imaging Buried Objects with Suppressed Electromagnetic Interference** John Norgard[1], Randy Musselman[1] and Andrew Drozd[2] [1]*US Air Force Academy, USA* [2]*Andro Computational Solutions, USA*		WE-AP-2-5: **Design of Wide-Band Monopole Antenna with Parasitic Elements** Qiu Jing-Hui, Wang Nan-Nan, Yu Feng and Deng Wei-Bo *Harbin Institute of Technology, China*
15:00	WE-SEM-2-6: **A Novel Broadband Common-mode Filter for High-speed Differential Signals** Wei-Tzong Liu, Tzu-Wei Han and Tzong-Lin Wu *National Taiwan University, Taiwan*	WE-CEM-3-6: **Parameter Identification of Transfer Functions using an Improved Vector Fitting Method** Wei Wang[1], Zhang Li[1], Qingmin Li[1] and W. H. Siew[2] [1]*Shandong University, China* [2]*University of Strathclyde, United Kingdom*		WE-AP-2-6: **Design and Analysis of TEM Horn Antennas for Ultra-Wideband Technology** Ying Suo, Jinghui Qiu and Yeshu Yuan *Harbin Institute of Technology, China*

Technical Sessions — Wednesday, 21 May 2008

Time	SUNTEC Room 303	SUNTEC Room 304	SUNTEC Room 305	SUNTEC Room 306
	SEM-3: SS- EM Reliability of Packages and Boards Chairs: Dr. Ivan.Ndip and Dr. Ege Engin	**HPEM-2: High Power EMC 2** Chairs: Prof. F. Maradei and Prof. Zhengxiang Song	**ENV-1: Environment Electromagnetics-1** Chairs: Prof. F. Canavero and Prof. Y. Toyota	**IF-1: EMC Industry Forum 1- EMC Simulation** Chairs: Dr. Ali Nadir Arslan and Marcel van Doorn
15:40	WE-SEM-3-1: **Effect of Package Parasitics on Conducted and Radiated Emission with Mixed-Mode Analysis** Umberto Paoletti, Takashi Hisakado and Osami Wada *Kyoto University, Japan*	WE-HPEM-2-1: **Performance Optimization Aspects of Common Mode Chokes**** Anne Roc'h[1], Hans Bergsma[3], Dongsheng Zhao [2], Braham Ferreira[2] and Frank Leferink[1, 3] [1]*University of Twente, The Netherlands* [2]*Technical University Delft, The Netherlands* [3]*Thales Netherlands, The Netherlands*	WE-ENV-1-6: **Simulation and Experiment on In-Car Channel Characteristics (Invited)** Wei Hong, Leilei Liu, Nianzu Zhang, Chen Yu, Hui Zhang, Jixin Chen, Zhenqi Kuai and Jianyi Zhou *Southeast University, Nanjing, P. R. China*	WE-IF-1-1: **EMC Workbench Test Methods in the Product Creation Process** Marcel van Doorn *Philips Applied Technologies, Netherlands*
16:00	WE-SEM-3-2: **EMI Simulation Based on Cavity Mode Model for Power-Bus Radiation Calculation of Power/Ground Planes with IC/LSI** Yoshitaka Toyota[1], Masahiro Nishida[1], Kengo Iokibe[1], Ryuji Koga[1] and Osami Wada[2] [1]*Okayama University, Japan* [2]*Kyoto University, Japan*	WE-HPEM-2-2: **Conducted Interference Immunity Test to High-Speed Power Line Communication System**** Satoshi Hosoya[1], Masamitsu Tokuda[1] and Takashi Matsuo[2] [1]*Musashi Institute of Technology, Japan* [2]*Sumitomo Electric Industries, LTD., Japan*	WE-ENV-1-1 : **Estimation of Background Noise in HF-band** Miki Iwama *National Inst. of Info. and Comm. Tech., Japan*	WE-IF-1-2 : **Signal Integrity Simulation Flow and Tools in a Product Design** Erno Lahteenmaki *Nokia Corporation, Finland*
16:20	WE-SEM-3-3: **Jitter Suppressed On-chip Clock Distribution Using Package Plane Cavity Resonance** Woojin Lee, Chunghyun Ryu, Jongbae Park and Joungho Kim *KAIST, South Korea*	WE-HPEM-2-3: **Pulsed Microwave Effects on Electronic Components** Hong-Ge Ma, Fan-Bao Meng, Yan Wang, Ke Li and Wu-Chuan Cai *Institute of Applied Electronics, China*	WE-ENV-1-2 : **Characterization of the Electromagnetic Environment in a Hospital** Oliver Lauer[1], Markus Riederer[2], Naceur Karoui[1], Rudiger Vahldieck[1], Emanuela Keller[3] and Jurg Frohlich[1] [1]*Swiss Federal Institute of Technology Zurich, Switzerland* [2]*Swiss Federal Office of Communication, Switzerland* [3]*University Hospital Zurich, Switzerland*	WE-IF-1-3: **The Aspects of EMC Simulation from Research to Product** Ali Nadir Arslan *Nokia Corporation, Finland*
16:40	WE-SEM-3-5: **Effect of Power Supply Imbalance on NF of CMOS Low Noise Amplifier for UHF RFID Applications** Kyoungchoul Koo, Jongjoo Shim, Hyunjeong Park and Joungho Kim *KAIST, South Korea*	WE-HPEM-2-4: **Feasibility Study of Using Porous Metal as Practical Shielding Material** K. Y. See[1], Y. Ling[1], W. J. Koh[2], J. Ma[1] and S. F. Ho[3] [1]*NTU, Singapore* [2]*DSO National Laboratories, Singapore* [3]*Defence Science & Technology Agency, Singapore*	WE-ENV-1-3: **Lightning-Induced Voltages on Telecommunication Lines in Korea** Ho-Seok Oh[1] and Dong-Chul Park[2] [1]*KT, South Korea* [2]*Chungnam National University, South Korea*	WE-IF-1-4: **EMC Simulations; An Engineering Tool for Predicting Potential EMC Errors in Product Development Process** Jari O. Jekkonen *Nokia Corporation, Finland*
17:00	WE-SEM-3-6: **On the Interactions between Mushroom-type EBGs and Striplines** Ivan Ndip, Stephan Guttowski and Herbert Reichl *Fraunhofer Institute for Reliability and Microintegration, Germany*	WE-HPEM-2-5: **A Modeling Method on Electromagnetic Interference Coupling Path of Digital Relay in Power System**** Bo Niu, ZhengXiang Song, YingSang Geng, Jianhua Wang and Jing Wang *Xi'an Jiaotong University, China*	WE-ENV-1-4: **Radiation Leakage from Shielded Cables by Pigtail Effect **** Zheng Zhong, Ying Wang and Ban Leong Ooi *NUS, Singapore*	WE-IF-1-5: **Mobile Phone EMC and Signal Integrity Simulation Methods** Ilkka Kelander and Pia Kotiranta *Nokia Corporation, Finland*
17:20	WE-SEM-3-7: **Methodology for Power and Signal Integrity Analysis in Single-Die and Multi-Die Systems** Saoer Sinaga[1] and Sidina Wane[2] [1]*NXP-Semiconductors Nijmegen, The Netherlands* [2]*NXP-Semiconductors Caen Campus-EffiScience, France*	WE-HPEM-2-6: **Synthesis of Wide Frequency Model of HVDC Valve Elements** Lei Liu, Xiang Cui and XueLian Gao *North China Electric Power University, China*	WE-ENV-1-5: **Case Studies on the Performance of Commercial-grade Lightning Event Counters** Z. A. Hartono and I. Robiah *Lightning Research Pte. Ltd., Malaysia*	WE-IF-1-6: **How Much Better is a Practical Stripline PCB Layout Than a Microstrip?** D. A. Weston *EMC Consulting Inc, Canada*
17:40		WE-HPEM-2-7: **Planning and Developing EMC along Parallel Running AC and DC Railways in the Centre of Berlin** Karl-Heinz Kuypers and Hermann Tschiedel *DB International GmbH, Germany*		

Open Forum-3: Poster Session 3, Wednesday, 21 May 2008, 13:20 – 15:40

Chairs: Dr. Dirk Baumann and Dr. Richard Gao, Venue: *SUNTEC Level 3 Concourse (Exhibition Area)*

WE-OF-3-1 **Step by Step Investigation of Near Field Radiated Mitigation at an IT Computer Board**
13:20 – 15:40 Heinz Zenkner and Werachet Khan-ngern, *King Mongkut's Institute of Technology Ladkrabang, Thailand*

WE-OF-3-2 **Electromagnetic Topology Analysis on Relation between Electromagnetic Interference inside Equipment and External Electrostatic Discharge**
13:20 – 15:40 Bo Niu, Zhengxiang Song, Yingsan Geng, Jianhua Wang and Jing Wang
Xi'an Jiaotong University, China

WE-OF-3-3 **Development of Induction Regional Heating By energy control Frequency 2.45 GHz**
13:20 – 15:40 Chumpon Patummakasorn, Shalermchom Thangwachiratan and Chanchai Thongsopa, *Suranaree University of Technology, Thailand*

WE-OF-3-4 **How to Protect Car-Size Sensitive Equipments Using a Shielding Cover**
13:20 – 15:40 Mohammad Mahdi Danaei[1], Hadi Aliakbarian[2], Morteza Azarbadegan[3] and Yahya Bairami[3]
[1]*University of Imam Hossein, Iran*
[2]*University of Tehran, Iran,* [3]*Iranian University of Science & Technology, Iran*

WE-OF-3-5 **Prediction of the common mode conducted EMI in PWM Inverter-fed Machine system**
13:20 – 15:40 Lei Zhang, WeiMing Ma and Jin Meng,
Naval Engineering University, China

WE-OF-3-6 **An Improved Fractal Tree Log-periodic Dipole Antenna**
13:20 – 15:40 Baixiao Wang, Aixin Chen and Donglin Su, *BUAA, China*

WE-OF-3-7 **Parametric Performance Simulation of a Proximity-Coupled Fed Microstrip Dipole Array**
13:20 – 15:40 P. J. Soh[1], R. A. J. A. Amir[1], M. M. Aiza[1], A. A. H. Azremi[1], M. Z. A. Abdul Aziz[2], M. K. A. Rahim[3] and A. H. Suhaizal[1]
[1]*Universiti Malaysia Perlis, Malaysia,* [2]*Universiti Teknikal Malaysia Melaka, Malaysia,* [3]*Universiti Teknologi Malaysia, Skudai, Malaysia*

WE-OF-3-8 **Propagation Characteristics of Perpendicular Incident Electromagnetic Waves passing through Thin-Layer Medium**
13:20 – 15:40 Qijia Xie and Shixiu Chen, *Wuhan University, China*

WE-OF-3-9 **Parametric Optimization of Microwave Radiometer Calibration Load**
13:20 – 15:40 Zhang Hui[1], Dirk Plettemeier[1], Miao Jungang[2], Wu Bo Chun[2] and Bai Ming[2]
[1]*Technology University of Dresden, Germany,* [2] *Beihang University, China*

WE-OF-3-10 **Novel and Simple Design of Multi Layer Radial Line Slot Array (RLSA) Antenna using FR-4 Substrate**
13:20 – 15:40 Md.Rafi Ul Islam and Tharek Bin Abd.Rahman, *UniversitiTeknologi Malaysia, Malaysia*

WE-OF-3-11 **Resonant Frequency of Annular Ring Antenna Using Shorting Pins**
13:20 – 15:40 Madhurika Mahajan[1], Sunil Kumar Khah[1] and T. Chakarvarty[2]
[1]*Physics Department, Jaypee University of Information Technology, India*
[2]*Tata Consultancy Services, Embedded systems Innovation Lab, India*

WE-OF-3-12 **Effect of Design Parameters on Sidelobe Level of Short-Focus Parabolic Reflector Antenna**
13:20 – 15:40 Bo Sun, Jinghui Qiu, Caitian Yang and Lingling Zhong
Harbin institute of technology, China

WE-OF-3-13 **Radiation Characteristics of Planar Reflector Antenna Covered by a Plasma Sheath**
13:20 – 15:40 Wei Li, Jinghui Qiu and Weibo Deng, *Harbin Institute of Technology,China, China*

WE-OF-3-14 **EM Field Coupling to Microstrip Lines Using Rigorously Coupled Multi-Conductor Strips**
13:20 – 15:40 Hamid Khodabakhshi and Ahmad Cheldavi
Iran University of Science and Technology (IUST), Iran

WE-OF-3-15 **Study on Noise Reduction Effect Using the Decoupling Capacitor with Resistor on Power Distribution Line**
13:20 – 15:40 Takeshi Hakoda, Takashi Sakusabe, Takehiro Takahashi and Noboru Schibuya
Takushoku University, Japan

WE-OF-3-16 **Comprehensive Study of Crosstalk Isolation for High-Speed Digital Board**
13:20 – 15:40 L. B. Wang, K. Y. See, W. Y. Chang and Z. G. Phang
Nanyang Technological University, Singapore

WE-OF-3-17 **The Simulation and Pre-design on the PCB of the Simulator**
13:20 – 15:40 Yi-feng Han, Zhao-wen Yan, *BUAA, China*

WE-OF-3-18 **Mutual Comparison on Calibration of Free-Space Antenna Factor for EMI Antenna in 30MHz – 1GHz**
13:20 – 15:40 Park Jungkuy[1], Jung Dongchan[1], Yoon Hoon[1], Ryoo Jaeman[1], Makoto Sakasai[2], Akira Suzuki[2], Katsumi Fujii[2] and Yukio Yamanaka[2]
[1]*Radio Research Lab., Broadcasting and Communications Commission, South Korea*
[2]*National Institutes of Information and Communications Technology, Japan*

WE-OF-3-19 **A Low Cost Dual-CPW Differential Line for Two-Layer PCBs**
13:20 – 15:40 Cheng-Jan Chi[1], Tsai Chih-Wei[1], Jian-Sheng Hsieh[1], Wen-Cheng Ko[1] and Tzong-Lin Wu[2]
[1]*ASUSTeK COMPUTER INC., Taipei, Taiwan*
[2]*National Taiwan University, Taipei, Taiwan*

WE-OF-3-20 **Analysis of Self Broadband Interference from Power Amplifier of Communication Platform**
13:20 – 15:40 Chen Wenqing[1,2], Su Donglin[1], Liao Yi[1] and Li Jiantao[2]
[1]*BUAA, China;*
[2]*The PLA Naval Academy of Equipment Research, China*

WE-OF-3-21 **Numerical Modeling and Measurements on the Shielding Effectiveness of Enclosure with Apertures**
13:20 – 15:40 Jong Hwa Kwon[1], Hyung-Do Choi[1], Hyun H. Park[2] and Jong Gwan Yook[3]
[1]*ETRI, South Korea* [2]*Samsung Electronics, Korea*
[3]*Yonsei University, Korea*

Technical Sessions — Thursday, 22 May 2008

Time	SUNTEC Room 303	SUNTEC Room 304	SUNTEC Room 305	SUNTEC Room 306
	SEM-4: Signal Integrity Chairs: Prof. K. Y. See and Prof. R. Achar	**HPEM-3: SS-High Power EMC 3** Chairs: Prof Jinliang He and Dr. W. Radasky	**MEAS-3 : Measurement Technique 2** Chairs: Prof. W. Hong and Dr. T. Sudo	**AP-3: Antenna Arrays** Chairs: Prof. V. Ungvichian and Prof. Z. Shen
08:40	TH-SEM-4-1: **Parallel EMI Analysis of Large Coupled Interconnects via Transverse Partitioning & Waveform Relaxation (Invited)** Ram Achar, Arvind Sridhar, Natalie Nakhla and Michel Nakhla *Carleton University, Canada*	TH-HPEM-3-1 : **On the Response and Immunity of Electric Power Infrastructures Against IEMI — Current Swedish Initiatives** Raul Montaño[1], Mats Bäckström[2], Daniel Månsson[3] and Rajeev Thottappillil[3] [1]*High Voltage Valley, Sweden* [2]*Saab Communication, Sweden* [3]*Uppsala University, Sweden*	TH-Meas-3-1: **On the Use of Dipole Models to Correlate Emission Limits Between EMC Test Facilities (Invited)** Perry Wilson *National Institute of Standards and Tech, USA*	TH-AP-3-1: **Mutual Coupling Effect on the Performance of Antenna Arrays with Corporate Feed** Min Wang[1] and Zhongxiang Shen[2] [1]*Nanjing University of Science and Technology, China* [2]*NTU, Singapore*
09:00	TH-SEM-4-2: **Insertion Loss of Unbalanced Transmission Line Crossing a Rectangular Aperture In an Infinite Backplane** Sung-woo Jung and Ki-chai Kim *Yeungnam University, South Korea*	TH-HPEM-3-2 : **High Power Transient Phenomena and Standardization** William Radasky *Metatech Corporation, USA*	TH-Meas-3-2 : **Optimization Guidelines for a Partially Lined Semi-Anechoic Chamber Using CEM** G. Dun[1,2], J. F. Rosnarho[1], P. Gelin[2] and F. Le Pennec[2] [1]*SIEPEL, France* [2]*LEST, France*	TH-AP-3-2: **Compensation of Mutual Coupling in Multi-Element Array Antennas** Y. P. Huang[1], F. Le Pennec[2], M. Ney[2] and Y. L. Lu[1] [1]*NTU, Singapore* [2]*LEST, France*
09:20	TH-SEM-4-3: **Substrate-Geometry Aware 2-Port Modeling for Surface-Mount Passive Components**** Koh Yamanaga[1,2], Takashi Sato[1] and Kazuya Masu[1] [1]*Tokyo Institute of Technology, Japan* [2]*Murata Manufacturing Co., Ltd., Japan*	TH-HPEM-3-3: **Analysis on Switching Transient EMI in ±500-kV HVDC Converter Stations**** Zhanqing Yu[1], Jinliang He[1], Rong Zeng[1], Wei Li[1], Bo Zhang[1], Jie Zhao[2] and Chuang Fu[2] [1]*Tsinghua University, China* [2]*China Southern Power Grid Co. Ltd., China*	TH-Meas-3-3 : **Ambient Noise Cancelation with a Time-Domain EMI Measurement System using Adaptive Filtering** Arnd Frech, Amer Zakaria, Stephan Braun and Peter Russer *Technische Universitaet Muenchen, Germany*	TH-AP-3-3: **A Circularly Polarized Microstrip Antenna Array with Butler Matrix** Mohamed Elhefnawy and Widad Ismail *Universiti Sains Malaysia, Malaysia*
09:40	TH-SEM-4-4: **Impacts of Bends and Ground Return Vias On Interconnects for High Speed GHz Designs**** Weng-Yew Chang, Richard[1], Kye-Yak See[2] and Yang-Long Tan[2] [1]*DSO National Laboratories, Singapore* [2]*Nanyang Technological University, Singapore*	TH-HPEM-3-4: **The Impact of High Power Current Arcs on Ground Rod Impedance** William A. Radasky and James L. Gilbert *Metatech Corporation, USA*	TH-Meas-3-4: **Induction Characteristics of A Solar Cell to Radiated Electromagnetic Disturbances**** Mariko Tomisawa and Masamitsu Tokuda *Musashi Institute of Technology, Japan*	TH-AP-3-4: **The Effects of an Additional Shorting Stub on PIFA Performance** Yves-Thierry Jean-Charles and Vichate Ungvichian *Florida Atlantic University, USA*
10:00	TH-SEM-4-5: **Effect of Ground Layer Patterns with Slits in Suppressing Cross-Talks between Two Parallel Signal Traces on Printed Circuit Board** Tsuyoshi Maeno[1,2], Hiroya Ueyama[2], Yukihiko Sakurai[1], Takanori Unou[1] and Osamu Fujiwara[2] [1]*Denso Corporation, Japan* [2]*Nagoya Institute of Technology, Japan*		TH-Meas-3-5: **EM Coupling in a Composite Component Bay** Wee Jin Koh[1], Peck Chian Yeo[1], Yew Seng Ng[1], Bruno Chevalier[2] and Jean- Christophe Joly[2] [1]*DSO National Laboratories, Singapore* [2]*Centre détudes de Gramat, France*	TH-AP-3-5: **Uni-Omnidirectional Radial Waveguide Slot Array Antenna Design for Wireless Local Area Network** Lway Faisal Abdulrazak and Tharek Abd. Rahman *Universiti Technologi Malaysia, Malaysia*

Technical Sessions — Thursday, 22 May 2008

Time	SUNTEC Room 303	SUNTEC Room 304	SUNTEC Room 305	SUNTEC Room 306
	SEM-5: Power Integrity Chairs: Dr. Albert Lu and Dr. Y. J. Zhang	**CEM-4: CEM-New Development and Applications** Chairs: Prof. Jianming Jin and Prof. L. W. Li	**MEAS-4 : Measurement Technique 3** Chairs: Dr. A. T. Bradley and Prof. W. D. Zhang	**AP-4: Analysis and Design of Antenna** Chairs: Prof. T. S. Yeo and Prof. S. Kahng
10:40	TH-SEM-5-1: **Suppressing Power Bus Resonance and Radiation Using Magnetic Material and EBG Structure** Yoshitaka Toyota[1], Kengo Iokibe[1], Ryuji Koga[1], Koichi Kondo[2] and Shigeyoshi Yoshida[2] *[1]Okayama University, Japan* *[2]NEC TOKIN Corporation, Japan*	TH-CEM-4-1: **Fast Time-Domain Computational Techniques and Their Application in EMC (Invited)** Jin Jianming *UIUC, United States*	TH-Meas-4-1: **Study on Measurement Uncertainty In Immunity Testing: IEC61000-4-6** Taiju Kurosawa, Takashi Sakusabe, Takehiro Takahashi and Noboru Schibuya *Takushoku University, Japan*	TH-AP-4-1: **Electric Line Source Illumination of a Lossy Metamaterial Covered Dielectric Cylinder (Invited)** Qun Wu[1], Hai-Long Wang[1] and Le-Wei Li[2] *[1]Harbin Institute of Technology, China* *[2]National University of Singapore, Singapore*
11:00	TH-SEM-5-2: **Miniaturization of Electromagnetic Bandgap Structures for Noise Suppression** A. C. W. Lu[1], L. L. Wai[1], V. Sunappan[1], J. Park[2], W. Fan[1], K. M. Chua[1], Y.T. Ng[1] and . Kim[2] *[1]SIMTech, Singapore* *[2]Korea Advanced Institute of Science and Technology, Korea*	TH-CEM-4-3: **Introduction to the Smoothed Particle Hydrodynamics Method in Electromagnetics** Gi-Ho Park, Klaus Krohne and Er Ping Li *IHPC, Singapore*	TH-Meas-4-2: **Research of Electric-field Strength Measurement Based on the Top-loading Antenna in the Near Field** Bin Yang[1], Weidong Zhang[1], Xiang Cui[1] and Jiahong Chen[2] *[1]North China Electric Power University, China* *[2]Wuhan High Voltage Research Institute of SGCC, China*	TH-AP-4-2: **Calculation of the Radiation from the Slot of a Slim Enclosure with a Cavity Resonator Model** Christian Poschalko[1] and Siegfried Selberherr[2] *[1]Robert Bosch AG, Austria* *[2]Technische Universitaet Wien, Austria*
11:20	TH-SEM-5-3: **Resonance Damping for Power Bus Structures in Printed Circuit Boards Using Magnetic Material Coating** Jing Jing Zhang and Zhi Liang Wang *Fudan University, China*	TH-CEM-4-4: **Light Scattering by Arrays of Gold Nanospheres and Nanoellipsoids** Yu-Ming Wu[1], Le-Wei Li[1] and Bo Liu[2] *[1]National University of Singapore, Singapore* *[2]Data Storage Institute, Singapore*	TH-Meas-4-3: **A New Simultaneous Conducted Electromagnetic Interference Measuring and Testing Device**** D. Sakulhirirak[1], V. Tarateeraseth[1], W. Khan-ngern[1] and N. Yoothanom[2] *[1]King Mongkut's Institute of Technology Ladkrabang, Thailand* *[2]Sripatum University, Thailand*	TH-AP-4-3: **The Optimization Design of the Pickett Potter Horn Antenna for Ka Band** Chen Yao, Chen Ai-xin and Su Dong-lin *Beihang University, China*
11:40	TH-SEM-5-5: **Design of Power Supply Noise and Radiation Free Power–Ground Plane for Modern System in Package** HuiFen Huang, QingXin Chu and JianKang Xiao *South China University of Technology, China*	TH-CEM-4-5: **Guiding Light in Different Plasmonic Nano-Slot Waveguides for Nano-Interconnect Application** Hong-Son Chu, Iftikhar Ahmed, Wei-Bin Ewe and Er-Ping Li *IHPC, Singapore*	TH-Meas-4-4: **TEM Cell Testing of Cable Noise Reduction Techniques from 2 MHz to 200 MHz - Part 1** Arthur T Bradley, William C Evans, Joshua L. Reed, Samuel K. Shimp III and Fred D. Fitzpatrick *NASA, USA*	TH-AP-4-4: **Accuracy Verification of the Antenna Electromagnetic Environment Simulation with Hybrid Method** Zhao Xiaonan, Wang rongcheng and Fang Chonghua *China Ship Development & Design Institute, China*
12:00	TU-SEM-1-7: **Improved Eigenmode Expansion Method for Investigating of Ground Bounce in Power/Ground Plane with Holes in PCBs** Ming-Yue Qiao, Wen-Yan Yin and Jun-Fa Mao *Shanghai Jiao Tong University, China*	TH-CEM-6-3: **Time Domain Discontinuous Galerkin Method with Efficient Modelling of Boundary Conditions for Simulations of Electromagnetic Wave Propagation**** N. Godel, S. Lange and M. Clemens *Helmut-Schmidt-University, Germany*	TH-Meas-4-5: **TEM Cell Testing of Cable Noise Reduction Techniques from 2 MHz to 200 MHz — Part 2** Arthur T Bradley, William C Evans, Joshua L. Reed, Samuel K. Shimp III and Fred D. Fitzpatrick *NASA, USA*	TH-AP-4-5: **Analysis of Nonlinearly Loaded Antennas Excited by an Electromagnetic Fast Transient Pulse: a MoM-AOM Approach** Hamid R. Karami, R. Moini and S. H. H. Sadeghi *Amirkabir University of Technology, Iran*

Open Forum-4: Poster Session 4, Thursday, 22 May 2008, 10:20 – 12:20

Chairs: Prof. Yee Hui Lee and Dr. Min Wang, Venue: *SUNTEC Level 3 Concourse (Exhibition Area)*

TH-OF-4-1 10:20 – 12:20
Frequency Planning of GSM Cellular Communication Network in Urban Areas including traffic distribution, a Practical Implementation
Mehran Atamanesh and Forouhar Farzaneh
Sharif University of Technology, Iran, Iran

TH-OF-4-2 10:20 – 12:20
Calculation of the Transient Electric Field Generated by Complicated Conductor Structure in Substation
Jiahong Chen[1], Mingxia Zhang[2], Xiang Cui[2] and Zhibin Zhao[2]
[1]*Wuhan High Voltage Research Institute of SGCC, Wuhan*
[2]*North China Electric Power University, China*

TH-OF-4-4 10:20 – 12:20
Wall Thickness Effects on Shielding Effectiveness of Metallic Enclosure with Apertures
Mohammad Ali Khorrami, Parisa Dehkhoda, Rouzbeh Moini and S. H. H. Sadeghi
Amirkabir Universirty of Technology, Iran

TH-OF-4-5 10:20 – 12:20
Dense Linear System Solution by Preconditioned Iterative Methods in Computational Electromagnetics
S. P. Kuksenko and T. R. Gazizov
Tomsk State University of Control Systems and Radioelectronics, Russia

TH-OF-4-6 10:20 – 12:20
Shielding Properties of Carbon Nanotubes — Amorphous Composite Coatings
Meng Feng, Xinlin Wang and Ming Zeng
Central Iron and Steel Research Institute, China

TH-OF-4-7 10:20 – 12:20
Electromagnetic Materials for Ultra-high Frequency Applications: Fe/SiO2 Composite Superfine Particles
Baolin Tang, Jun He, Xinlin Wang and Meng Feng
Division of Functional Material Research, Central Iron & Steel Research Institute, China

TH-OF-4-8 10:20 – 12:20
A Comparison between Backprojection and Sensitivity Methods in EIT Reconstruction Problems
Daniele Romano, Stefano Pisa, Emanuele Piuzzi and Luca Podestà
Sapienza University of Rome, Italy

TH-OF-4-9 10:20 – 12:20
The Diagnostics of the Electromagnetic Radiation Sources on the HV Substations
Nikolay V. Kinsht and Natalia N. Petrun'ko
Far East Branch of Russian Academy, Russia

TH-OF-4-10 10:20 – 12:20
An Efficient Algorithm for Analysis of Power Integrity in Electronic Package
Zaw Zaw Oo, Liu En-Xiao, Wei Xingchang and Li Erping
IHPC, Singapore

TH-OF-4-11 10:20 – 12:20
Computation of Magnetic Field Radiated by Power Electrical Devices- Apply to Inverse Problems of Source Identification
V. P. Bui[1], O. Chadebec[2], L. L. Rouve[2] and J. L. Coulomb[2]
[1]*IHPC, Singapore*
[2]*Institut National Polytechnique de Grenoble, France*

TH-OF-4-12 10:20 – 12:20
Closed-Form Evaluation of the Integration of Green's Function for Method of Moments
Eng-Kee Chua and Xing-Chang Wei
IHPC, Singapore

TH-OF-4-13 10:20 – 12:20
Model-Based Inversion of 2-D TM Scattering Problems
Mansor Nakhkash and Abbas Ali Heidari
Yazd University, Iran

TH-OF-4-14 10:20 – 12:20
A Study on EMI Mechanism of Mobile Communication System
JongSung Park
LG-Nortel, Korea

TH-OF-4-15 10:20 – 12:20
Chronic Exposure to Magnetic Field Restores Function Following Hemi Section of Spinal Cord: An Electro-Physiological and Behavioral Study in Rat
Suman Das, S. Jain and R. Mathur
All India Institute of Medical Sciences, India

TH-OF-4-16 10:20 – 12:20
Effect of Chronic Intermittent Exposure to Magnetic Field on Aggression in Rats
Suman Jain, Pooja Mishra, Amber Khan and Rashmi Mathur
All India Institute of Medical Sciences, India

TH-OF-4-17 10:20 – 12:20
Frequency Dependent Transmission Line Models with Corona
M. A. Freitas, S. Kurokawa and J. Pissolato
UNICAMP - State University of Campinas, Brazil

TH-OF-4-18 10:20 – 12:20
Issue in ISO/IEC 17025 Accredition of EMC Labs in India
Sanjay Baisakhiya, B. Subbarao and S. Karunakaran
SAMEER-Centre for Electromagnetics, India

Technical Sessions — Thursday, 22 May 2008

Time	SUNTEC Room 303	SUNTEC Room 304	SUNTEC Room 305	SUNTEC Room 306
	SYS-1: System Level EMC 1 Chairs: Prof. Hiroshi Inoue and Prof. Q. Wu	**CEM-5: CEM for Field and Circuit Modeling** Chairs: Prof. Donglin Su and Prof. T.-C. Lin	**ENV-2: Environment Electromagnetics 2** Chairs: Prof. B. L. Ooi and Prof. W. Khanngern	**EMC-1: Complex System EMC** Chairs: Prof. T. Hubing and Prof. J. G. Ma
13:20	TH-SYS-1-0: **Multitone Intermodulation Distortion in Higher-Order Nonlinear RF Circuits/Systems (Invited)** Jianguo Ma and Erping Li *University of Electronic Science and Technology of China (UESTC), China*	TH-CEM-5-1: **MagPEEC Modeling Technique Based on GMD** Pan Qijun, Ma Weiming, Zhao Zhihua, Meng Jin, Zhang Lei and Zhang Xiangming *Naval University of Engineering, China*	TH-ENV-2-1: **EMI Reduction Using Symmetrical Switching and Capacitor Control** Julia Paixão[1], Andreas Karvonen[1], Johan Åström[1], Trygve Tuveson[2] and Torbjörn Thiringer[1] [1]*Chalmers University of Technology, Sweden* [2]*EMC Services Elmiljöteknik AB, Sweden*	TH-EMC-1-1: **A design of Cognitive UWB Pulse Based on APSWF** Jiang Tao[1,2], Cui Zhen-Gang[2], Hu Jia-Wei[2] and Hou Yan-Li[2] [1]*Harbin Institute of Technology, China* [2]*Harbin Engineering University, China*
13:40	TH-SYS-1-1: **A System-Level EMC Technical Support Platform for Network-Based Computers (Invited)** Qun Wu[1], Jia-Hui Fu[1], Fan-Yi Meng[1], Hai-Long Wang[1], Bo-Shi Jin[1] and Fang Zhang[2] [1]*Harbin Institute of Technology, China* [2]*Kwangwoon Univerisity, Korea*	TH-CEM-5-2: **Analysis of Lighting-radiated Electromagnetic Field in Reinforced Concrete Structures Using the Method of Moment** Mingxia Zhang[1], Xiang Cui[1], Jiahong Chen[2] and Zhibin Zhao[1] [1]*North China Electric Power University, China* [2]*Wuhan high voltage research institute of SGCC, China*	TH-ENV-2-2: **Corona Characteristics of Conductors due to Oscillatory Lightning Surges** Wang Jia and Zhang Xiaoqing *Beijing Jiaotong University, China*	TH-EMC-1-2: **Shielding Effectiveness of Cylindrical Enclosures with Rectangular Apertures** Boyu Zheng and Zhongxiang Shen *NTU, Singapore*
14:00	TH-SYS-1-2: **EMC Characterization of Modules** Marcel van Doorn *Philips Applied Technologies, Netherlands*	TH-CEM-5-3: **Dynamical Optimal Training for Behavioral Modeling of Nonlinear Circuit Elements based on Radial Basis Function Neural Network** Ming-Jen Kuo and Tsung-Chih Lin *Feng Chia University, Taiwan*	TH-ENV-2-3: **Possibility of Electromagnetic Shielding using Salt Transparency Liquid** T. Udomsinsirikul and W. Khan-ngern *King Mongkut's Institute of Technology Ladkrabang, Thailand*	TH-EMC-1-3: **PEEC Modeling and Reduction Studies Based on Nonuniform Mesh and Arnoldi Algorithm** Pan Qijun, Ma Weiming, Zhao Zhihua, Meng Jin, Zhang Lei and Tang Jian *Naval University of Engineering, China*
14:20	TH-SYS-1-3: **Common-Mode Current Inductively Coupled Emission of AC PWM Drives** Meng Jin, Zhang Lei, Ma Weiming, Zhao Zhihua and Pan Qijun *Naval University of Engineering, China*	TH-CEM-5-4: **New Numerical Methods of Computing Internal Inductance of Conductors of Rectangular Cross Section** Anqi Hu, Weiming Ma and Zhihua Zhao *Naval University of Engineering, China*	TH-ENV-2-5: **The Analysis of the Effects to Affect Shielding Effectiveness of the Cage Built with the Wire-mesh Reinforcement Based on FDTD Method** Chaoqun Jiao[1], Xiang Cui[2], Lin Li[2] and XueLian Gao[2] [1]*Bejing Jiaotong University, China* [2]*North China Electric Power University, China*	TH-EMC-1-4: **The Hybrid Higher-Order MoM-UTD Formulation for Electromagnetic Radiation Problems** Zi-liang Liu[1], Juan Yang[2] and Chang-hong Liang[3] [1]*Temasek Laboratories @ nus, Singapore* [2]*Nanyang Technological University, Singapore* [3]*Xidian University, China*
14:40	TH-SYS-1-4: **Electromagnetic Interference from Printed Circuit Boards Connected by Flexible Printed Circuit Board** Masayuki Ota, Takashi Sakusabe, Takehiro Takahashi and Noboru Schibuya *Takushoku University, Japan*	TH-CEM-5-6: **Number of Infinitesimal Dipoles in Genetic Algorithms for Near Field-Far Field Conversion** Hongmei Fan and Franz Schlagenhaufer *The Unversity of Western Australia, Australia*	TH-ENV-2-6: **Investigation of Magnetic Shielding Efficiency of rooms with windows and doors at Power Frequency** Wang Ying, Zhong Zheng, Rong Yifei and B. L. Ooi *National University of Singapore, Singapore*	TH-EMC-1-5: **An Improved Physical Optics Method for the Computation of Radar Cross Section of Electrically Large Objects** Chonghua Fang, Xiaonan Zhao and Qian Liu *China Ship Development & Design Institute, China*
15:00	TH-SYS-1-5: **EM Radiation through Aperture of Metallic Enclosure with a PCB inside**** Shogo Miyata, Yoshiki Kayano and Hiroshi Inoue *Akita University, Japan*	TH-CEM-6-4: **Wideband Transient Response of Irregular Conductive Objects Illuminated by a High-Power EMP**** Zhijie Zhou, Mingfeng Xue, Wenyan Yin and Junfa Mao *Shanghai Jiao Tong University, China*		

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Time	SUNTEC Room 303	SUNTEC Room 305	SUNTEC Room 306
	SYS-2: System Level EMC 2 Chairs: Dr. F. Schlagenhaufer and Dr. Z. J. Liu	**EMI-2: EMI Devices** Chairs: Dr. Andy Drozd and R. Koga	**IF-2: EMC Industry Forum 2** Chairs: Dr. W. H. Siew and Prof. QingMin Li
15:40	TH-SYS-2-1: **Distributed RC On-Chip Decoupling** D. Hesidenz[1] and J. Kruppa[1,2] *[1]Infineon Technologies AG, Germany* *[2]University of Erlangen-Nürnberg, Erlangen, Germany*	TH-EMI-2-1: **Analysis and Design of MEMS Capacitive Switch for Microwave Distributed Phase Shifter** Xun-jun He[1], Qun Wu[1], Kai Tang[1], Yue Wang[1], Huai-cheng Zhu[2] and Ying Xu[2] *[1]Harbin Institute of Technology, China* *[2]Institute of Remote Sensing Equipment, China*	TH-IF-2-1: **The Evaluation and Prediction of the Conducted Interference Caused by the SVC in the Substation** Qingmin Li[1], W. H. Siew[2] and Wei Wang[1] *[1]Sangdong University, China* *[2]University of Strathclyde, United Kingdom*
16:00	TH-SYS-2-2: **Shielding Effectiveness Characterization of Metallic Enclosures with a Thin-Sheet Panel Illuminated by a Arbitrary Polarizations High-Power EMP** Qi-Feng Liu[1], Wen-Yan Yin[1], Jun-Fa Mao[1] and Qing-Huo Liu[2] *[1]Shanghai Jiao Tong University, China* *[2]Duke University, U.S.A*	TH-EMI-2-2: **A Novel Dual-Frequency RF MEMS Phase Shifter** Kai Tang[1], Yu-ming Wu[2], Qun Wu[1], Hai-long Wang[1,2], Huai-cheng Zhu[3] and Le-Wei Li[2] *[1]Harbin Institute of Technology, China* *[2]National University of Singapore, Singapore* *[3]Institute of Remote Sensing Equipment, China*	TH-IF-2-2: **Characterisation of the Electromagnetic Environment Within Power System Substations** W. H. Siew *University of Strathclyde, United Kingdom*
16:20	TH-SYS-2-3: **Assessment of EMI Chokes under Realistic Loading Conditions** Deng Junhong[1] and See Kye Yak[2] *[1]TÜV SÜD PSB Pte Ltd, Singapore* *[2]Nanyang Technological University, Singapore*	TH-EMI-2-3: **Stability Design of the Microwave Power Module** Zhang Jin Ling[1], Lv Ying Hua[1], Yang Biao[1], Yang Jin Sheng[2] and Zheng Zhan–qi[1] *[1]Univ. of Posts and Telecommunications, China* *[2]Beijing Vacuum Electronics Research Institute, China*	TH-IF-2-3: **Radiometric Assessment of Partial Discharge in Air Insulated Substations** Phil Moore *University of Strathclyde, United Kingdom*
16:40	TH-SYS-2-4: **Conductive Common-Mode Noise Reduction by System Balance Improvement on Three Phase Inverter** Nimit Boonpirom[1], Yothin Prempraneerach[2], Kaison Aunchaleevarapan[3] and Shuichi Nitta[4] *[1]Sripatum University, Thailand; [2]King Mongkut's Institute of Technology Ladkrabang, Thailand; [3]Electrical and Electronic Products Testing Center, Thailand; [4]Salasiean Polytechnic, Japan*	TH-EMI-2-4: **Design High Performance Microwave Absorbers Using Adaptive Genetic Algorithm (AGA)** Liyong Jiang and Xiangyin Li *Nanjing University of Science & Technology, China*	TH-IF-2-4: **The Difficulty to Reach a Consensus in the EMC Standardization for Power Line Communication** Michel Ianoz *Swiss Federal Institute of Technology, Switzerland*
17:00	TH-SYS-2-5: **A Behavioral Simulation Method to Predict and Estimate EMI Characteristics of Electronic System** Chen Wenqing[1,2], Su Donglin[1], Cai Derong[2] and Zhao Chaoxian[2] *[1]BUAA Beijing, China* *[2]The PLA Naval Academy of Equipment Research, China*	TH-CEM-6-2: **Application of B-Spline Temporal Basis Function in Time-Domain Finite Element Method for Three-Dimensional EM Radiation Problem**** Xia Wu and Lezhu Zhou *Peking University, China*	TH-IF-2-5: **EMC Issues of Building Electrical Systems** Kai Sang Lock *PQR Consultants, Singapore*
			TH-IF-2-6: **EMC Management on Land Transport Systems** Samuel Chan *LTA, Singapore*

Facts and Figures of 2006 EMC in Singapore

February 27 to March 3, 2006

The 17th International Zurich Symposium and Technical Exhibition on Electromagnetic Compatibility (EMC Zurich in Singapore 2006) was held from February 27 to March 3, 2006 at the Singapore SUNTEC International Convention and Exhibition Center. As it turned out, SUNTEC was a perfect location for this event as it provided great meeting rooms, is situated adjacent to the Central Business District of Singapore with ample hotel space, and offered a variety of restaurants to please the taste buds of participants. This was the first time that EMC Zurich was organized outside Europe and Singapore was an excellent host country that left a lasting impression on all participants.

The Symposium was one of the largest EMC events in the Asia-Pacific Region jointly organized by the Singapore universities, the A-STAR Institute, the IEEE EMC Singapore Chapter, the Institute of Engineers Singapore, and in close cooperation with the Swiss Federal Institute of Technology (ETH Zurich). The IEEE EMC Society as well as other societies provided technical co-sponsorship. The general organization of the Symposium followed the tradition of EMC Zurich with a clear focus on high quality technical papers and their presentations by speakers from all over the world. Two-day workshops and tutorials prior to the Symposium were conducted by 36 international specialists which introduced participants to the latest developments in the fields of Lightning EMC, Semiconductor Device EMC, Circuit Board EMC Design, Transportation EMC, EMC Modeling and Simulation, EMC and Safety of Wireless Communication Devices, Naval Engineering EMC, EMC and Signal Integrity, Shielding and Protection, as well as System Level EMC Design and Control. These events alone were well attended with over 220 participants and provided some groundwork for the three days of regular EMC technical sessions to follow. In addition, several topical meetings and special sessions took place in the fields of Biomedical Electromagnetics, EMC in Asia, Military EMC, Nanoelectronics EMC, and Wireless Communication EMC.

In conjunction with the Symposium two important meetings were held: The IEEE Region 10 EMC Chapter Chairs Retreat and the Asia-Pacific EMC Chairpersons Meeting. Both were well attended and provided new information on the status of EMC activities in the Asia-Pacific region. The Symposium attendance was with 450 delegates from over 40 countries, also the exhibition, co-located with the Symposium, had drawn over 35 exhibitors on 1000 square meters of floor space.

On the left: The President of the Symposium, Dr. Li Erping, giving the welcome address at the opening ceremony on 1 March 2006.
On the right: The General Chair, Professor Ruediger Vahldieck, addresses the audience at the opening ceremony.

In his speech during the opening ceremony on Wednesday morning, Dr. Li Erping provided some background on the idea to move the EMC Zurich Symposium in even years from Zurich to Singapore. He described the organization of EMC Zurich in Singapore as difficult at times and certainly interesting, but

also as one of the most challenging jobs he ever faced. In light of this, he felt relieved when finally all the pieces of the work fell into place and the Symposium ran smoothly. He thanked all the organizing committee members for their great enthusiasm and hard work and emphasized the fact that without their relentless effort, the Symposium would not have been possible. On behalf of the organizing committee, he also expressed his sincere thanks to the symposium sponsors namely, Schaffer EMC Pte Ltd, Rohde & Schwarz, Singapore Technologies Electronics Ltd, CST, EM Test, Swiss House Singapore and TME.

The General Chair, Professor Vahldieck, complimented the local organizing committee for a job well done and announced that the 18th EMC Zurich Symposium will be held in Munich from September 24 – 28, 2007, at the same time of the world renowned Oktoberfest.

The Technical Program Chair, Professor Todd Hubing, outlined the technical paper selection and review process. He pointed out that the technical papers in Singapore maintained as high a standard as known from Zurich and that about 30% of papers submitted were rejected.

On the left: Dr. Peter Siegel of the California Institute of Technology, spoke on "Terahertz Technology in Outer and Inner Space" during his keynote speech at the Symposium opening session.
On the right: Dr. C. K. Chou from Motorola presents "The Potential of EMC in a Seamless Mobility Environment" for his keynote speech at the Symposium opening session.

The Deputy-President of Nanyang Technological University, Professor Er Meng Hwa, the Swiss Ambassador to Singapore, Dr. Daniel Woker, and the President of the IEEE EMC Society, Dr. Andrew Drozd, welcomed all participants in the name of their respective organizations. The highlights during the opening session were two keynote speeches. First, Dr. Peter Siegel, of the California Institute of Technology, spoke on "Terahertz Technology in Outer and Inner Space" and Dr. C. K. Chou spoke on behalf of Rob Shaddock, CTO for Mobile Devices at Motorola Inc., on "The Potential of EMC in a Seamless Mobility Environment."

The following three days offered 45 well attended technical sessions and, in parallel, the Topical Meetings on concepts in Biomedical EMC, Wireless Communication EMC, Nanoelectronics EMC, Automotive EMC, and Semiconductor Device EMC.

In the evening following the first technical session on March 1, the delegates were invited to visit the Electromagnetic Environment Research Lab (EMERL) located at the Nanyang Technological University, which is a newly built EMC lab in Singapore. Delicious appetizers were provided to the delegates prior to the lab tour. The delegates enjoyed the reception food and the visit.


On the left: Professor Joungho Kim from KAIST, Korea, presents his paper in Singapore.
On the right: Professor and Mrs. Yoshino join Professor and Mrs. Vahldieck at the reception held during the Symposium.

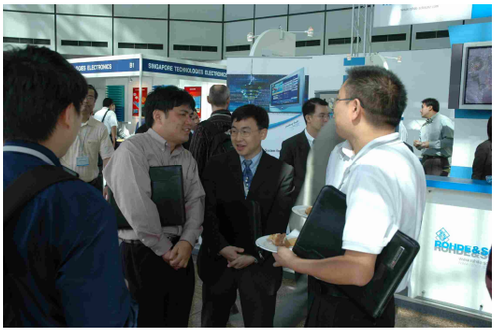
The Best Symposium Paper Award was given to Professor Stefano Grivet-Talocia, Ms. Silvia Acquadro, Mr. Carlo Peraldo, Professor Flavio Canavero, Dr. Ilkka Kelander, Dr. Markku Rouvala, and Dr. Ali Arslan, all from the Politecnico di Torino, Italy, for their paper "Parameterized Macromodels for Lossy Multiconductor Transmission Lines." This selection was from 169 regular papers and 50 Topical Meeting papers reviewed by two to five independent reviewers. From a short-listed of 10 papers the jury consisting of Professor Youji Kotsuka, Dr. William Radasky, Professor Shen Zhongxian, Professor Robert Weigel and Dr. Franz Schlagenhaufer, selected the finalist. The jury commented that all the 10 short listed papers were excellent and the decision was very difficult to select just one. To expose the best Symposium papers to the international community, all authors of accepted papers were invited to submit an extended version of their paper to the IEEE Transactions on EMC for a possible issue on EMC Zurich in Singapore to appear at the end of 2006. However, the condition is that those papers submitted must have a significantly extended content (about 60%) over the Symposium paper and will go through yet another rigorous review process after which only about 10 papers were selected for publication.


On the left: The judges working on the best student papers.
On the right: IEEE Region 10 EMC Chapter Chairs retreat in Singapore on 28 Feb. 2006.

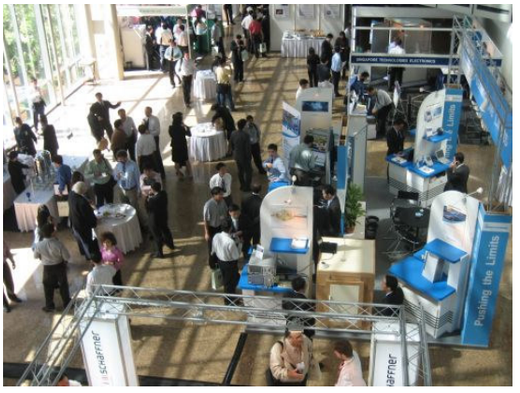
The Best Student Paper competition was an equally difficult task for the judges. Here, 21 papers were short listed from 58 student papers. Besides the oral presentations, the students were required to present their papers in the poster session. The jury consisting of Professor Todd Hubing, Professor Peter Leung, Professor Flavio Canavero, Professor See Kye Yak and Dr. Koh Wee Jin selected the three best papers. The first prize went to Kezhong Zhao and Jin-Fa Lee from Ohio State University for their paper "An Accelerated Non-Conforming DP-FETI Domain Decomposition Method for the Analysis of Large EMC Problems." The second prize went to Stephan Braun, Mohammed Al-Qedra, and Professor Peter Russer from the Technische Universität München, Germany for the paper "A Novel Real-time Time-domain EMI Measurement System Based on Field Programmable Gate Arrays." Mr. Kin Seong Leong and his co-authors Mun Leng Ng and Professor Peter Cole from the University of Adelaide, Australia, won the third prize for the paper "Operational Considerations in Simulation and Deployment of RFID Systems."

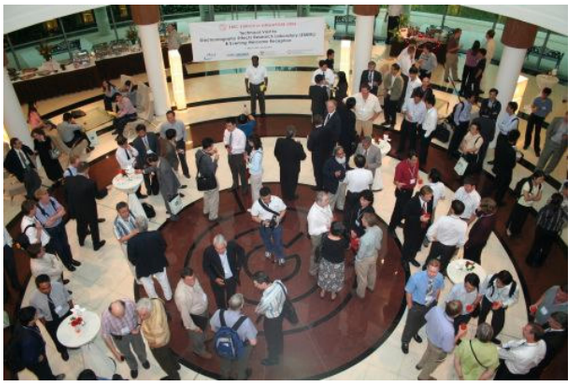
The dinner banquet of the Symposium was specially held at the world's premier Singapore Night Safari (a night zoo). Creatures from South America, Asia, and India greeted visitors from their own naturalistic enclosures, which simulate that of their own homeland. Even the tablecloths were decorated using the tiger skin color.

On the left: The first place student prize winner, Mr. Kezhong Zhao (left), receives the certificate from the Technical Program Co-Chair Professor Ma Jianguo.
On the right: An elaborate banquet dinner titled "Singapore Night Safari" was held during the Symposium.



Delegates at the Symposium





On the left: Technical Exhibition taking place at the Concourse of Suntec International Convention Centre.
On the right: The welcome reception held at Nanyang Technological University.

Optional Tours

About Singapore

Renowned worldwide as a thriving, dynamic centre for commerce and industry, Singapore's central location, excellent facilities, cleanliness, fascinating cultural contrasts and tourist attractions draw visitors. It is a place of many interesting sights, from historic ethnic areas, to tourist attractions to serene nature escapes.

Apart from its shopping and ethnic areas, Singapore offers some of the most captivating nature theme attractions guaranteed to fascinate all ages. Its beautiful open-concept zoo has captured international attention, the Jurong Bird Park with its 20 hectares of beautifully landscaped parklands housing thousands of colorful birds, many of which are free to come and go as they please.

When the sun goes down, Singaporeans come out to play. From classical symphonies to Chinese operas, jazz to ballet, rock to Hollywood's latest hits, Singapore offers unlimited entertainment. Singapore is also a gourmet's paradise with an incredible range of cuisine; from traditional local fare savored at busy "hawker centres" to international cuisine served at the finest, world-class restaurants.

Find out more about Singapore with the exciting local tours specially arranged for you. For more details and booking, please approach the Conference Secretariat at Exhibition Hall, Level 3.

Optional Tour Program

Date	Local Tour	Start Time	End Time
Tuesday, 20 May 2008	City Tour Jurong Bird Park	09:00 14:00	12:00 18:00
Wednesday, 21 May 2008	Footsteps of Raffles & Colonial Era Night Safari (with dinner)	09:00 18:00	13:30 23:00
Thursday, 22 May 2008	Sunshine @ Sentosa Cheng Ho High-Tea Cruise	08:00 15:00	12:00 17:00
Friday, 23 May 2008	Peranakan Trail (with food tasting)	09:00	12:00

Operations/Event Schedule

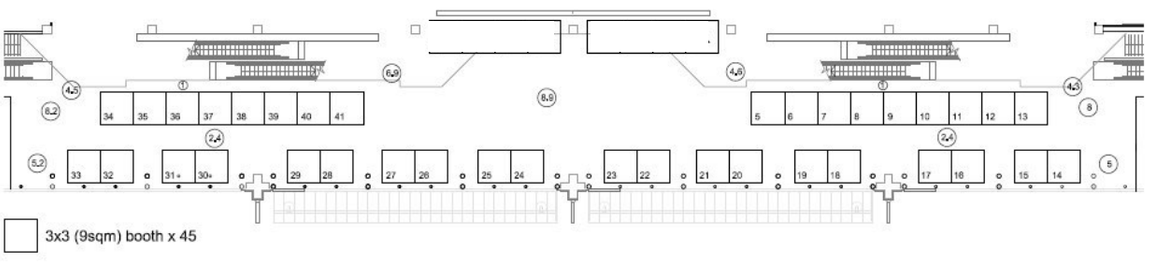
Exhibition dates & time	:	Tuesday, 20 May 2008 08:30 – 17:00 Wednesday, 21 May 2008 08:30 – 17:00 Thursday, 22 May 2008 08:30 – 17:00
Exhibitor registration	:	Monday, 19 May 2008 15:00 – 18:00
Booth build-up	:	Monday, 19 May 2008 08:00 – 14:00 (*Official Contractor: Pico Art International*) 12:00 – 20:00 *(Other Booth Contractors)*
Exhibition tear-down	:	Thursday, 22 May 2008 17:00 – 22:00

Exhibitors

List of Exhibitors

S. No.	Organization Name	Booth No.
1	2COMU	22
2	3M	5
3	Advanx Innotech	6
4	Agilent Technologies / iNETest Resources P/L	39
5	Albatross Projects GmbH	41
6	Ansoft Corporation	7
7	AR/RF/Microwave	1 & 2
8	Cosmotec Enterprises Pte Ltd	8
9	CST	40
10	EM Software and Systems - SA (Pty) Ltd	18
11	EM Test	44 & 45
12	Emerson & Cuming Microwave Products HK Ltd	28
13	ETS Lindgren	20 & 21
14	Glocom Marketing Pte Ltd	32
15	Haefely EMC Technology (Quantel Pte Ltd)	42
16	Huber + Suhner (S) Pte Ltd	23
17	IEEE / EMC	13
18	Joinset	33
19	JS Denki Pte Ltd	26 & 27
20	LabOne Singapore Pte Ltd	43
21	Laird Technologies (SEA) Pte Ltd	19
22	Lambda Microwaves (P) Ltd	37
23	Narda Safety Test Solutions SRL	38
24	Nanjing University Boping Electronic Information Co, Ltd	12
25	Rohde & Schwarz	30 & 31
26	Safety & EMC	15
27	Schurter (S) Pte Ltd	10
28	Speedy-Tech Electronics Ltd	9
29	ST Electronics	16 & 17
30	Taylor & Francis Asia Pacific	Table Top
31	Teseq	24 & 25
32	TME Systems Pte Ltd	29
33	TÜV SÜD PSB Pte Ltd	14

EMC 2008
CONCOURSE AREA, LEVEL 3
SUNTEC SINGAPORE



2COMU

Computer and Communication Unlimited is an electromagnetic simulation software and parallel system development company. We have developed 3-D parallel electromagnetic simulation software that has been successfully used for solving many electrically large and complex EM problems. We believe that GEMS recently created a world record by achieving 90% parallel efficiency on 4,000 CPUs when solving a real world antenna array problem. Besides offering the parallel EM simulation software, we also provide our customers with an optimized or customized turnkey EM package, which includes all the necessary software and hardware such as an operating system, parallel environment, cluster management module, network, I/O and storage systems, high performance servers, and parallel GEMS Simulator. Our support team works directly with the customer to provide excellent services that include problem modeling; simulation; data-post processing; and, result analyses.

Contact person : Wenhua Yu
URL : www.2comu.com

3M

An Innovative Electromagnetic Compatible (EMC) Total Solution Partner
A wide variety of 3M EMC products help protect and provide for electronic and electrical components — from the manufacturing process to the final product. 3M EMC products are designed to shield or absorb electromagnetic and radio frequency interference, ground sensitive electronic components and boards, cushion components, protect cables, provide conductive properties, and add value in other ways. 3M offers a wide range of EMI/RFI shielding tapes and absorbing materials, mesh and sleeving products, gaskets and conductive pads, hybrid EMC materials.

These innovative products are based on advanced research conducted at 3M laboratories around the world, building on EMI shielding technology that 3M introduced more than 40 years ago.

3M EMC products are designed to provide EMI/RFI shielding and absorbing, static charge grounding, anti-static masking, cushioning, mechanical protection, and conductive properties for a wide range of applications.

Contact person : Joe Ko
URL : www.3m.com

ADVANX INNOTECH

Advanx InnoTech is established to provide leading EMC solution to our valued customer in the S.E.A region. With many years of EMC system knowledge and partnership with high performance RF absorbent material manufacturer and leading shielding supplier, we can offer advanced EMC shielding chamber and testing solution to meet any specifications.

Contact person : Mike Ong
URL : www.advanxinnotech.com

Agilent Technologies / iNETest Resources P/L

iNETest Resources Pte Ltd, a wholly owned subsidiary of Ellipsiz Ltd, is a one-stop manufacturing and test solutions service provider for high volume electronic manufacturers. iNETest Resources also offers Agilent's Test and Measurement equipments that are used in the design, development, manufacture, installation, deployment and operation of electronic equipment and systems, and communications networks and services. At iNETest, we offer innovative and integrated solutions to our customers and business partners, enabling their goals optimally. Today, iNETest is headquartered in Singapore and has presence in Malaysia, Thailand, Taiwan, Vietnam, China and India. iNETest firmly believes that the success of the business is pivoted by its team of experienced and dedicated employees, together with the support of its partners and customers. Backed by a strong technical sales and engineering team, we are committed to continuous improvement and technical innovation, in the process determining the best solutions to meet our customer's needs and wants. Through unfailing and consistent communication with our partners and customers, iNETest will continue to provide seamless account management and service and support coverage to our customers, being relevant and of value to our customers' and partners' dynamic business environment.

Contact person : Ann Hu
URL : http://www.inetest.com

AlbatrossProjects

Albatross Projects GmbH

Albatross Projects GmbH is an international positioned enterprise for the implementation of EMC Test Systems. We offer customized solutions and advanced technology in these fields:

- Anechoic Chambers
- Antenna Chambers
- Shielded Enclosures
- Tempest Facilities

We are focusing on superior quality for turnkey solutions to provide our customers with valuable equipment. Rely on our commitment to excellent service.

Contact person : Micky Tan
URL : http://www.albatross-projects.com.sg/index.htm

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Ansoft Corporation

Ansoft Corporation is a leading developer of electronic design automation (EDA) software. Our technology, based on more than 25 years of research and development from the world's leading experts in electromagnetics, circuit, and system simulation, dramatically streamlines the design of high-performance electronic products, including:

- Cellular phones
- Internet-access devices
- Communication systems
- Broadband components
- Integrated circuits (ICs)
- Printed circuit boards (PCBs)
- Automotive electronic systems
- Power electronics

Our software is sold and supported worldwide, with offices located throughout North America, Asia, and Europe.

Contact person : Tan Liping
URL : http://www.ansoft.com.sg/

rf/microwave instrumentation

AR/RF/Microwave

AR RF/Microwave Instrumentation is a manufacturer and distributor of high-power, broadband amplifiers from dc to 45 GHz, from 1 to 50,000 watts that are well suited for radiated and conducted immunity testing as well as equally suitable for general laboratory use. Available is a full line of complimentary test accessories including antennas, directional couplers, field monitoring equipment, power meters, and signal generators. We also carry RF conducted immunity generators, automotive transient generators, EMI receivers and precompliance EMC test systems.

AR RF/Microwave Instrumentation
160 School House Road
Souderton PA 18964
215-723-8181

Contact person : Douglas Shepherd
URL : www.ar-worldwide.com

COSMOTEC
(A member of Sanwa Group)
www.cosmotec.com.sg

Cosmotec Enterprises Pte Ltd

Founded in 1983, Cosmotec Enterprises is an established company in the test and measurement instrumentation business. With EMC business being one of our key focus technologies market, Cosmotec is committed to complete customer satisfaction by providing solutions founded on excellent engineering support and services, integrated solutions, and valued added services.

Contact person : Ai Ling
URL : http://www.cosmotec.com.sg/

CST

CST

CST is one of the two largest suppliers of electromagnetic simulation software and has continuously enhanced its position as market and technology leader in 3D Time Domain simulation. With over 80 employees worldwide and a network of qualified distributors, 120 people are dedicated to the development and support of its EM products in more than 30 countries.

Contact person : Tobias Baerenstraunch
URL : www.cst.com

EM Software & Systems – SA (Pty) Ltd

FEKO is a comprehensive computational electromagnetics (CEM) code based on the accurate "full wave" Method of Moments. The leading MLFMM and the MoM hybrid with asymptotic high frequency techniques (PO and UTD) allow simulation of electrically large problems, e.g. antenna placement. Several techniques including Finite Element Method (FEM) available for dielectric regions.

Contact person : Celeste Mockey
URL : www.feko.info

EM TEST

EM TEST is your most competent partner in EMC. Our solutions and know-how in testing the susceptibility and measuring of emissions are recognized worldwide. EM TEST is the leading manufacturer of high-class, full-compliance EMC test and measurement equipment for the electronics industry in the automotive, telecom, medical, industrial electronics, avionics and military branches. EM TEST is offering seminaries and workshops along with other comprehensive services to transfer our know-how to our customers to help achieving compliance and quality. Please contact us for any question or suggestion, or in case you cannot find the desired information on our website. EM TEST is always there for you — world-wide.

Contact person : June Cheah
URL : www.emtest.com

Emerson & Cuming Microwave Products HK Ltd

For over half-a-century, Emerson & Cuming Microwave Products has been the undisputed technology leader in the development and production of microwave absorbing materials, low-loss dielectric materials, electrically conductive shielding materials, and anechoic chambers. Serving a broad spectrum of commercial and military markets, Emerson & Cuming Microwave Products offers a diverse range of products for commercial wireless communications, defense and aerospace, consumer electronics, biomedical and automotive industries. Emerson & Cuming Microwave Products is an ISO 9001:2000 Registered manufacturer with manufacturing facilities at Westerlo, Belgium and Randolph, Boston, USA. Our trade names and products are:

ECCOSORB®	:	microwave absorbing materials and anechoic chambers;
ECCOSTOCK®	:	dielectric materials for low loss RF and microwave applications.
ECCOSHIELD®	:	electrically conductive sheets, caulks, adhesives and coatings.
ECCOPAD®	:	standard and custom solutions for RFID read on metal technology.

All of our products and services are backed by expert teams with in-depth knowledge of materials science, chemistry, microwave theory and measurement techniques to help our customers solve their specific electromagnetic materials problems, feel free to contact us to testify Emerson & Cuming Microwave Products Always On Your Wavelength.

Contact person : Brent Ng
URL : http://www.eccosorb.com/main/Home.html

ETS Lindgren

ETS-Lindgren is the largest integrated manufacturer of EMC test equipment, with project management and support facilities in Singapore, Beijing, Taipei and Tokyo. Our products include turnkey anechoic, reverb and acoustic chambers; EMC, microwave and acoustic absorbers; antennas, antenna towers, turntables, RF shielding, shielded doors, broadband E-field probes, GTEMs and more. Services include NSA measurements, antenna and probe calibrations. Our labs are A2LA and NVLAP accredited.

Contact person : Jenny See
URL : www.ets-lindgren.com

GLOCOM
MARKETING PTE LTD
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Glocom Marketing Pte Ltd

Glocom Marketing Pte Ltd was incorporated in year 1983. We are a leading provider of innovative Electromagnetic Interference (EMI) shielding products and solutions for the Electronic Manufacturing Industry. We positioned ourselves as an integrated One-stop EMI Solutions provider with our wide range of EMI products for the flexibility of Design applications to your entire possible EMI problem.

Contact person : Karen Toh
URL : www.insis.com/e-storefront/glocom/

HAEFELY EMC TECHNOLOGY

Haefely EMC Technology (Quantel Pte Ltd)

As a leader in the field of EMC, **Haefely EMC Technology** has a full range of conducted immunity test equipment designed to simulate the effects of interference sources on electronic, electrical and telecommunications products. Most popular and included in both IEC and EN product standards are the "classic" EMC tests for electrostatic discharge (*esd*), electric fast transient/burst (*eft*), lightning *surge*, magnetic fields (*mf*), power *line* quality and conducted radio frequency (*rf*). Our objective is to provide the best-in-class *range of instruments* that are flexible enough to be used in many applications including product development, type verification, product safety, component and production testing. Quantel Pte Ltd will be showcasing latest Haefely EMC testing equipment in the EMC Zurich Singapore 2008 Technical Exhibition.

Contact person : Adeline Yeo
URL : www.haefelyemc.com

Huber + Suhner (S) Pte Ltd

The Huber + Suhner group is a leading global supplier of components and systems for electrical and optical connectivity. Our customers in telecommunications, industrial applications and transportation appreciate that we are specialists with detailed knowledge of practical applications. We offer technical expertise in radio frequency technology, fibre-optics, cables and polymers under one roof, thus providing a unique basis for continual innovation focused on the needs of our customers all over the world. O**UR MOTTO is: «EXCELLENCE IN CONNECTIVITY SOLUTIONS».** At the heart of our offering is a broad range of products that can be relied on to meet high quality standards, backed up by flexible, dependable services with fast response times worldwide. We concentrate on complex applications that allow us to stand out by adding value with special product features, customer-specific innovations, engineering and other services.

Contact person : Tan Wei Wei
URL : www.hubersuhner.com.sg

IEEE / EMC

IEEE (Eye-triple-E) EMC Society is one of the 39 societies under IEEE. It is a non-profit, technical professional association providing services in the areas of electromagnetic.

Contact person : Elya Joffe, President of IEEE EMC Society
URL : http://www.emcs.org

Join us & Set up

Joinset

Joinset is specialize in manufacturing of electronic components such as Thermistor, Varistor, MLCC(high voltage), PCB Gasket(SMT available gasket), Al tape, EMI Gasket. We've been supplying our PCB Gasket to LG Display(ex. LG Philips LCD) and this item is very suitable for the purpose of grounding & noise solution. The application of PCB Gasket is LCD Panel, Cellular Phone, DMB devices. In case of Varistor, we also produce a special one which has very low capacitance "0.1pF". This item is very suitable for HDMI function device, bluetooth device, USB 2.0, Cellular phone.

Contact person : Sunny Orh
URL : www.joincet.com

JS Denki Pte Ltd

JS Denki is a 100% EMC Test & Measurement Solution Company with an experienced and technically competent group who are fully committed in the EMC field. As a customer oriented company, we provide customize EMC solution and high quality after sales support to our value customers because customer satisfaction is our main objective.

Contact person : Ann Tan
URL : www.jsdenki.com.sg

LabOne Singapore Pte Ltd

LabOne is an independent testing laboratory that provides test services to the diversify group of industries such as Electronics, Medical, Telecommunication, Automotive and Defense industries. Our services include EMC Testing, Product Climatic & Mechanical Reliability Testing, Testing Business Outsourcing, Manufacturing System Audit/Product Life/EMC & Reliability) and Equipment Distribution. We know the importance of speedy time-to-markets launching of customer's products and we valued customers' feedback to improve our test services.

Contact person : Wendy Nya Siew Wan
URL : www.labone.com.sg

Laird Technologies (SEA) Pte Ltd

Laird Technologies is the global market leader in the design and supply of electromagnetic interference (EMI) shielding and cellular antenna products and solutions, and has a growing presence in the high performance thermal interface materials market. We cover all sectors of the electronics industry, including information technology, telecommunications and data transfer, as well as the defence, automotive and medical markets, enhancing the performance and security of electronic devices.

Contact person : Collin Yeo
URL : http://www.lairdtech.com/

Lambda Microwaves Pvt. Ltd

Lambda Microwaves Pvt. Ltd. is committed to produce excellent and technological expertise in state-of-the-art Passive Waveguide Components, Integrated Assemblies, Filters, Diplexers, Multiplexers, Surge Arrestors, BTS Antennas and Active Components. The company was incorporated in 1996 to develop and manufacture Passive Microwave Products, Coaxial Passive Components, MIC Components, Sub Systems and Assemblies, Microwave Industrial Heating Systems, RF Absorbers, Anechoic Chambers, EMI / EMC enclosures. It is now multi diversified group of companies, providing end to end solutions for Defense, Telecom, Satcom, Railways and Power sector. Our goal is to achieve the highest quality performance, reliability, service and on-time delivery. This goal has allowed Senor Lambda Group to maintain steady growth and customer satisfaction.

Contact person : Mahesh Chand Kala
URL : http://www.senorlambda.com/

Narda Safety Test Solutions SRL

Narda Safety Solutions is a multinational US-based corporation, member of the L3-Communications group, and leading the market of electromagnetic field measurement. Narda Safety Solutions s.r.l. is located in Italy and continues the renowned brand PMM by bringing innovative measuring instruments and solutions in the EMC/EMI market since 1985.

Contact person : Cinzia Canton
URL : www.narda-sts.it

Nanjing University Boping Electronic Information Co, Ltd

BEI, Main anechoic chamber supplier in china, have more than 100 achieved projects. Start from absorbers manufacturer to turn key professional chamber project , totally more than 20 years experience. Experienced in chamber design and simulation, also we have some special absorbers used in other kind of ways.(Detail see Production & Service).

BEI History

- 1986 , Nanjing University Electronic Department setup absorber research team which leaded by Pro.Wang.
- July 1999,Nanjing Boning Electronic Information Institute founded.
- Jan. 2001, Nanjing Univ. Boping Electronic Information Co., Ltd founded.

Production and Service

Anechoic Chamber * System Total Solution.

Anechoic Chamber Design and Technical Consult

Shielded Rooms

Electromagnetic Absorbers

- Form Absorbers
- Nonflammable Absorbers
- Ferrite Absorbers

Measurement Apparatus & Software

- Turn Table
- Antenna towers
- Maintenance and Measurement

Special Used Absorbers Design and Production

- Design (Material & Frame)
- Rubber/Grass/Painting/Coating Absorbers

*-Anechoic Chamber

- RCS
- Antenna test
- Radio
- (3m/5m/10m) EMC
- Special Designed

Contact person : Fan Di Gang
URL : www.beiemc.com.cn

ROHDE&SCHWARZ

Rohde & Schwarz

Rohde & Schwarz is one of the world's leading manufacturers of EMI, communication, signal analysis and signal generation equipment. We are leaders in turnkey EMI and EMS test systems. With 6000+ employees worldwide, subsidiaries and representatives in over 70 countries, you are assured of responsive support for all your EMC applications. For expert support committed to EMC, call us at 65-68463710.

Contact person : Amy Chan
URL : www.rohde-schwarz.com.sg

安全与电磁兼容

Safety & EMC

SAFETY & EMC is a science and technology periodical issued by the Chinese Electronic Standardization Institute. It has been established for over sixteen years and publishes 6 issues annually. This periodical covers the standards, testing, certification, design and many other aspects of EMC. In China, more than 100,000 engineers are our faithful readers.

Contact person : Xie Hong
URL : http://www.semc.cesi.cn/

SCHURTER
ELECTRONIC COMPONENTS

Schurter (S) Pte Ltd

SCHURTER, founded in Switzerland in 1933, is an internationally recognized manufacturer and supplier in the electronics- and electro business for passive electromechanical components (*fuses*, *connectors*, *input systems* and *circuit breakers*).

Included in Schurter's line card, EMC products represent a very important pillar. This varies from:

- connectors and power entry modules with line filters;
- various choke possibilities;
- single- and three-phase line filters for heavy-duty applications;

through to output filters for frequency converter installations.

With the availability of pro-compliance measurement in our own EMC center, we can provide high quality EMC solution based on customer specific requirements. The service can take place either on site, in our EMC laboratories or in cooperation with partners.

We always assure that, both now and in future, our customers are supplied with quality products worldwide, products which perfectly correspond to their individual needs.

Contact person : Linh Ho
URL : www.schurter.com

Speedy-Tech Electronics Ltd

Founded in 1985, Speedy-Tech is an **E**lectronics **M**anufacturing **S**ervice (EMS) provider and specializes in design and manufacturing of power converters. In year 2004, a world class 10m EMC testing chamber was setup, combining with other EMC testing facilities for provision of Power Electronics solutions and EMC test services. In year 2005, Speedy-Tech has merged and became part of **I**ntegrated **M**icroelectronics, **I**nc. (IMI) group.

Contact person : Mandy Teo
URL : http://www.speedy-tech.com.sg/

ST Electronics

ST Electronics, the electronics arm of ST Engineering, delivers innovative system solutions to defence, homeland security, commercial and industrial customers worldwide. A leader in Asia Pacific for EMC, RF/Microwave engineering and wireless communications, ST Electronics offers a range of solutions and services:

- Architectural Shielding Systems & Solutions
- EMI/EMC Consultancy, Test & Measurement Services
- One-stop Instrument Calibration Centre for Calibration & Repair of Test, Measuring & Diagnostic Equipment

Contact person : Estelle Chin
URL : http://www.stee.stengg.com/

Taylor & Francis Asia Pacific

Taylor & Francis is continually building on its long-established reputation for high quality publications in all subjects.

Best known for its scientific and reference books and journals, Taylor & Francis publishes over 800 new books each year, (with a backlist in excess of over 10,000 specialist titles) in all areas of built environment, engineering, life and behavioural sciences, as well as chemistry, physics and mathematics.

Contact person : Azhani Eshak
URL : http://www.taylorandfrancis.com/

TESEQ

Teseq delivers test equipment, test systems and end-to-end solutions especially for fast-evolving technology sectors that demand rapid, reliable results in compliance with current standards. Nowhere is "survival of the fittest" manifested so dramatically as in the fast-paced high-tech industry. This is precisely where the benefit of Teseq's test systems shines through: With immediate and reliable results, every test is a step forward.

Contact person : Lim Pei Xin
URL : www.teseq.com

TME Systems Pte Ltd

Established in 1986, TME Systems, its regional offices and affiliates have been providing customers with an international range of reputable products that come with strong research and development emphasis as well as high manufacturing standards. Our products enable users to achieve higher productivity and efficiency whether in the office, the manufacturing plant, the laboratory, or the worksite.

Contact person : Tan Lit Han
URL : http://www.tmesystems.com.sg/

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Call for Papers

Symposium Topics

- EMC Management
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Important Dates

Proposals for Tutorials, Workshops and the Topical Forum	**25 April 2008**
Preliminary paper submissions for regular sessions (4 pages in PDF format only)	**4 July 2008**
Our notification of acceptance	**8 August 2008**
Final paper submission	**10 October 2008**

Details on the symposium website:

www.emc-zurich.ch

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leuchtmann@emcz.ethz.ch

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- Exotic and synthetic microwave materials
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- RFID standards, novel applications, and case studies
- Other related topics
- GPS, duplex GPS, and GPS applications
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- ZigBee, WiFi, UWB, and other wireless interconnects
- Mobile phones, TD-SCDMA and other techniques
- EM measurement and instrumentation techniques
- EMC management and measurement
- EMC modeling and simulation
- Signal and power integrity
- IC, PCB and system EMC
- RoHS and other green manufacturing techniques
- Biological effects and medical applications
- Microwave superconductivity
- Microwave nanotechnology
- MEMS, and any other relevant topics
- Microwave components, devices, and modules
- RFID components

Important Dates

Proposals for special sessions & Proposals for workshops and tutorials	**May 15, 2009**
Preliminary paper submissions	**June 19, 2009**
Notification of acceptance	**August 14, 2009**
Final paper submission	**Sept. 25, 2009**

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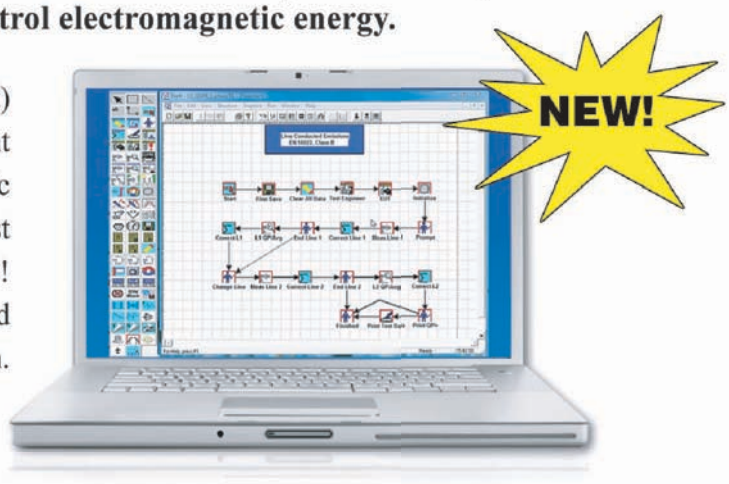

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