TECHNICAL SESSION PAPERS

Tuesday AM

Computational EM 1

Session Chair: Jun Fan, Missouri University of Science and Technology

8:30 - 9:00	**Modeling Experiences With Full-Wave Time-Domain Modeling Software** *H. Zeng, C. Su, H. Ke, T. Hubing, Clemson University, Clemson, United States*
9:00 - 9:30	**Analysis of Distributed Coupling along Nonparallel Traces using PEEC with Phase Term Expansions** *M. A. Cracraft[1], J. L. Drewniak[2], [1]IBM Corporation, Poughkeepsie, United States, [2]Missouri Institute of Science and Technology, Rolla, United States*
9:30 - 10:00	**Statistical Response of Nonlinear Equipment in a Reverberation Chamber** *I. D. Flintoft, L. Dawson, A. C. Marvin, University of York, York, United Kingdom*
10:30 - 11:00	**Multiconductor Transmission Line Modeling with VHDL-AMS for EMC Applications** *H. Zhang[1], K. Siebert[1], S. Frei[1], T. Wenzel[2], W. Mickisch[2], [1]Dortmund University of Technology, Dortmund, Germany, [2]TUV-Nord, Essen, Germany*
11:00 - 11:30	**Aperture modeling using a hybrid method for RFI analysis** *L. Ren[1], Z. Yu[1], G. Feng[1], F. De Paulis[1], Y. Zhang[1], X. Dong[2], J. A. Mix[2], D. Hua[2], K. P. Slattery[2], J. Fan[1], [1]Missouri University of Science and Technology, Rolla, United States, [2]Intel Corporation, Hillsboro, United States*

PCB Design 1

Session Chair: Kermit Phipps, Electric Power Research Institute

8:30 - 9:00	**An Investigation on the Reduction Technique of Radiated Emission from Chassis with PCB** *H. Funato[1], T. Suga[2,2], [1]Hitachi America Ltd., Farmington Hills, United States, [2]Hitachi Ltd., Yokohama, Japan*
9:00 - 9:30	**Inductance Calculations For Advanced Packaging in High-Performance Computing** *H. Kwak[1], H. Ke[1], B. Lee[2], T. H. Hubing[1], [1]Clemson University, Clemson, United States, [2]Samsung Electro-Mechanics, Suwon, Republic of Korea*
9:30 - 10:00	**Fast Evaluation of Electromagnetic Interference Between Antenna and PCB Traces for Compact Mobile Devices** *S. Grivet-Talocia[1], M. Bandinu[2], F. Canavero[1], I. Kelander[3], P. Kotiranta[3], [1]Politecnico di Torino, Torino, Italy, [2]IdemWorks s.r.l., Torino, Italy, [3]NOKIA Corporation, Helsinki, Finland*
10:30 - 11:00	**Determining the Maximum Allowable Heatsink Voltage to Ensure Compliance with a Given Radiated Emissions Specification** *X. He, H. Ke, T. H. Hubing, Clemson Vehicular Electronics Laboratory, Clemson, United States*

TECHNICAL SESSION PAPERS

11:00 - 11:30	**Experimental Validation of Imbalance Difference Model to Estimate Common-Mode Excitation in PCBs** *Y. Toyota[1], T. Matsushima[1], K. Iokibe[1], R. Koga[1], T. Watanabe[2], [1]Okayama University, Okayama, Japan, [2]Industrial Technology Center of Okayama Prefecture, Okayama, Japan*
Measurement Techniques 1 **Session Chair: H. Robert Hofmann, Hofmann EMC Engineering**	
8:30 - 9:00	**Statistical Approach to Alternative Test Method – Measurement Method of Conducted Disturbance Voltage -** *K. Osabe[1], A. Maeda[2], J. Kawano[3], [1]VLAC, Tokyo, Japan, [2]A. Maeda Associates Inc., Yokohama, Japan, [3]VCCI, Tokyo, Japan*
9:00 – 9:30	**In situ testing of large machines: alternative methods for conducted emission measurement** *J. A. Catrysse, Khbo, Oostende, Belgium*
9:30 – 10:00	**In situ testing of large machines: alternative method for radiated emission measurement** *J. A. Catrysse, Khbo, Oostende, Belgium*
10:30 – 11:00	**Converting Total-Radiated-Power Measurements to Equivalent E-Field Data** *H. Garbe, S. Battermann, Leibniz University of Hannover, Hannover, Germany*
11:00 – 11:30	**Calculation of Antenna Pattern Influence on Radiated Emission Measurement Uncertainty** *A. Kriz, Austrian Research Centers GmbH, Seibersdorf, Austria*
11:30 – 12:00	**New radiated RF immunity/susceptibility test method using RF-pulsed rotating-EM field** *K. Murano[1], M. Tayarani[2], F. Xiao[3], Y. Kami[4], [1]Tokai University, Hiratsuka-shi, Japan, [2]Iran University of Science and Technology, Narmak, Iran, [3]University of Electro-Communications, Chofu-shi, Japan, [4]University of Electro-Communications, Chofu-shi, Japan*
Automotive EMC **Session Chair: Richard Wiese, General Motors**	
8:30 - 9:00	**Outdoor Vehicular Test Range Turntable Impact on Electric-Field Uniformity Study** *J. A. Graham[1], R. T. Johnk[3], L. Nagy[5], D. C. Martin[1], D. Hibbard[1], S. T. Yencer[1], T. L. Roach[4], D. Novotny[2], C. Grosvenor[2], N. Canales[6], [1]General Motors, Milford, United States, [2]NIST, Boulder, United States, [3]ITS, Boulder, United States, [4]University of Illinois, Urbana, United States, [5]Warren, United States, [6]Firestone, United States*
9:00 - 9:30	**Study of a conformal hidden wire antenna used for the detection of stolen cars** *A. Ciccomancini Scogna, J. Wang, CST of America, Framingham, United States*
9:30 - 10:00	**Functional Safety and EMC for the Automotive Industry** *S. Alexandersson, Lund University, Lund, Sweden*
10:30 - 11:00	**Estimation of the Statistical Variation of Crosstalk in Wiring Harnesses** *M. Wu[1], D. G. Beetner[1], T. Hubing[2], H. Ke[2], [1]Missouri University of Science and Technology, Rolla, United States, [2]Clemson University, Clemson, United States*
11:00 - 11:30	**Radiated Immunity Tests of Automotive EMC Challenge Vehicle Active Antenna Designs** *J. K. Kuvedu-Libla, Delphi Electronics & Safety, Bad Salzdetfurth, Germany*

TECHNICAL SESSION PAPERS

11:30 - 12:00	**Frequency Modulated (FM) Radio Band Audio Interference Pre-Compliance Test Method** *S. Mee, Johson Controls Automotive Electronics, Cergy, France*
	Open Forum 1
8:30 - 12:00	**Comparing Full Lateral Metallization and Reference Plane Stitching in LTCC Boards for Satellite Applications** *A. Trave, A. Di Pasquale, G. Antonini, A. Orlandi, University of L'Aquila, L'Aquila, Italy*
	Shielding Effectiveness of Planar Negative-Permeability Screens *G. Lovat, S. Celozzi, "La Sapienza" University of Rome, Roma, Italy*
	Techniques for Measuring the Common Mode Current and Voltage of ASIC Devices *R. Flinders, J. McHenry, E. Nakauchi, Emulex Corporation, Costa Mesa, United States*
	The Influence of Test Parameters on TEM Cell Measurements of ICs *V. Kasturi, D. G. Beetner, Missouri University of Science and Technology, Rolla, United States*
	Radio Frequency Compatibility of an RFID Tag on Glideslope Navigation Receivers *T. X. Nguyen[1], J. J. Mielnik[2,1], [1]NASA Langley Research Center, Hampton, United States, [2]Lockheed Martin Corp., Hampton, United States*
	On Contact Conditions in Connectors to Cause Common Mode Radiation *Y. Hayashi[1], Y. Kayano[3], T. Mizuki[2], H. Sone[2], H. Inoue[4], [1]Tohoku University, Sendai, Japan, [2]Tohoku University, Sendai, Japan, [3]Akita University, Akita, Japan, [4]Akita University, Akita, Japan*
	Analysis and Improvement the Isolation between antennas on airborne platform with traveling wave antennas method *H. Y. Chun, S. D. Lin, C. W. Qing, D. K. Jia, Bei Jing University of Aeronautics and Astronautics, Beijing, China*
	Effect of slider conductive adhesive on EMI radiation of hard disk drives *E. Jang[1], H. Choi[2], Y. Ku[2], [1]Samsung Information Systems America , San Jose, United States, [2]Samsung Electronics Co. , Suwon , Republic of Korea*

Tuesday PM

Signal Integrity 1

Session Chair: Sam Connor, IBM

1:30 - 2:00 **Signal Integrity Analysis of single-ended and differential signaling in PCBs with EBg structure**

A. Ciccomancini Scogna[1], A. Orlandi[2], V. Ricchiuti[3], [1]CST of America, Framingham, United States, [2]University of L'Aquila, L'Aquila, Italy, [3]Technolabs, L'Aquila, Italy

2:00 - 2:30 **Signal integrity analysis of a 26 layer board with emphasis on the effect of non-functional pads**

A. Ciccomancini Scogna, CST of America, Framingham, United States

2:30 - 3:00 **A Novel HU-shaped Common-mode Filter for GHz Differential Signals**

S. Wu, H. Chuang, T. Wang, T. Wu, National Taiwan University, Taipei, Taiwan

3:30 - 4:00 **Power/Ground Noise Immunity Test in Wireless and High-Speed UWB Communication System**

C. Yoon, H. Park, W. Lee, M. Shin, J. Pak, J. Kim, KAIST, Daejeon, Republic of Korea

4:00 - 4:30 **A 6.4Gbps On-chip Eye Opening Monitor Circuit for Signal Integrity Analysis of High Speed Channel**

M. Shin[1], J. Kim[1], J. Pak[1], J. Shim[1], H. Kim[2], C. Hwang[1], J. Kim[1], Y. Kim[2], K. Park[2], C. Yoon[1], [1]KAIST, Daejeon, Republic of Korea, [2]Hynix, Kyunggi do, Republic of Korea

4:30 - 5:00 **Method and Applications of Oscilloscope Waveform De-embedding to Remove Measurement Parasitics**

X. Ye[1], B. Smith[2], P. E. Fornberg[3], A. Norman[4], [1]Intel Corporation, Hillsboro, United States, [2]Intel Corporation, Columbia, United States, [3]Intel Corporation, Hilllsboro, United States, [4]Intel Corporation, Hillsboro, United States

EM Environment

Session Chair: Dave Southworth, SPAWAR

1:30 - 2:00 **Understanding Pantograph Arcing in Electrified Railways -- Influence of Various Parameters**

S. Midya[1], D. Bormann[3], A. Larsson [2,1], T. Schutte[4], R. Thottappillil[1], [1]Uppsala University, Uppsala, Sweden, [2]FOI -- Swedish Defence Research Agency, Tumba, Sweden, [3]ABB AB - Corporate Research, Västerås, Sweden, [4]Rejlers Ingenjörer AB, Västerås, Sweden

2:00 - 2:30 **The Use of High Performance HF Antenna Arrays to Optimize Reception in Urban Noise Environment**

V. P. Arafiles[1,2], D. P. Anderson[1,2], M. T. Bail[2,1], [1]Department of Defense , Washington, United States, [2]Integrated Engineering Concept, Warsaw, United States

2:30 - 3:00 **Electromagnetic Environment Characterization of Below-Deck Spaces in Ships**

G. B. Tait, M. B. Slocum, Naval Surface Warfare Center Dahlgren, Dahlgren, United States

3:30 - 4:00 **Description and classification of electromagnetic environments - revision of IEC 61000-2-5**

B. W. Jaekel, Siemens AG, Erlangen, Germany

TECHNICAL SESSION PAPERS

4:00 - 4:30	**EMC Feasibility Study of the use of 2.4-GHz-WLAN Applications on Bridges of Cruise and Container Vessels** *T. Pilsak, J. L. ter Haseborg, Hamburg University of Technology, Hamburg, Germany*
4:30 - 5:00	**Characterization of the EM environment of railway spot communication systems** *J. del Portillo[1], M. Osinalde[1], E. Sukia[2], I. Sancho[1], J. Mendizabal[1], J. Melendez[1], [1]CEIT and Tecnun (University of Navarra), San Sebastian, Spain, [2]CAF, Beasain, Spain*

System EMC Analysis
Session Chair: Bob Scully, IBM

1:30 - 2:00	**A Study on the Correlation between the Stray Capacitance of a Signal Transformer and the Magnetic Field Emitted from Communication Lines** *Y. Akeboshi[1], S. Nitta[1,2], S. Saito[1], [1]Mitsubishi Electric Corp., Kamakura, Japan, [2]Salesian Polytechnic, Machida, Japan*
2:00 - 2:30	**Modelling Interference Phenomena between Cosite Radiocommunication Equipments to Evaluate Systems Performance Degradation** *E. Yalçin[1,2], C. Girard[1], M. Cabellic[1], M. Hélier[2], G. Alquié[2], J. Montmagnon[2], [1]Thales Communications, Colombes, France, [2]UPMC Univ Paris 06, Paris, France*
2:30 - 3:00	**Digital to RF Coupling Analysis Methodology for Mixed-Signal Systems** *D. Lim, Y. Kim, A. S. Kim, Samsung Electronics Co., ltd., Suwon, Republic of Korea*
3:30 - 4:00	**The Behavioral Simulation of EMI System by DNA Method at the System Level** *C. W. Qing[1,2], S. D. Lin[1], S. Wei[1], H. Y. Chun[1], [1]Beijing University of Aeronautics and Astronautics, Beijing, China, [2]the Navy Academy of Equipment Research, Beijing, China*
4:00 - 4:30	**Characterization and Modeling of Faceplates by a Frequency-Dependent Impecance Matrix** *H. M. Kudyan, Alcatel-Lucent, Whippany, United States*
4:30 - 5:00	**EMI Analysis Methods for Synchronous Buck Converter EMI Root Cause Analysis** *K. W. Kam[1,2], D. Pommerenke[1,2], R. Steinfeld[2,1], C. Lam[2,1], [1]Missouri University of Science and Technology, Rolla, United States, [2]Apple Inc., Cupertino, United States*

Special Session:
Validation of Simulation/Modeling Results
Session Chair: Bruce Archambeault

1:30 - 2:00	**Proper Model Validation is Important for all EMI/EMC Applications** *B. R. Archambeault, S. Connor, IBM, Research Triangle Park, United States*
2:00 - 2:30	**Differential Vias Transition Modeling in a Multilayer Printed Circuit Board** *M. Cocchini[1], W. Cheng[2], J. Zhang[2], J. Fisher[2], J. Fan[1], J. Drewniak[1], Y. Zhang[1], [1]UMR/MST EMC Laboratory, Missouri University of Science and Technology, Rolla, United States, [2]Cisco Systems, San Jose, United States*
2:30 - 3:00	**Time-Domain Modeling Techniques for Periodic Structures** *R. Qiang[1], D. Jackson[1], J. Chen[1], W. Kainz[2], [1]ECE, Houston, United States, [2]FDA, Silver Spring, United States*

3:30 - 4:00	**Progress in the Development of a 2D Feature Selective Validation (FSV) Method** *A. Orlandi[1], G. Antonini[1], C. Polisini[1], A. Duffy[2], H. Sasse[2], [1]University of L'Aquila, L'Aquila, Italy, [2]De Montfort University, Leicester, United Kingdom*
	Open Forum 2
1:30 - 5:00	**Multimodal Circuit Model for The Analysis of Asymmetric Shunt Impedance Transitions** *P. Rodríguez-Cepeda, M. Ribó, F. Pajares, J. Regué, A. Sànchez, A. Pérez, Enginyeria i Arquitectura La Salle, Barcelona, Spain*
	Determination of Gain for Pyramidal-Horn Antenna on Basis of Phase Center Location *K. Harima, M. Sakasai, K. Fujii, National Institute of Information and Communications Technology, Koganei, Japan*
	Investigation of Conducted Immunity and Spatial Distribution of RF Currents for a 2-Sided PCB *C. Rostamzadeh, Robert Bosch LLC, Plymouth, United States*
	Cable EMI Shielding Measurements using a Reverberation Chamber *J. Diepenbrock, B. Archambeault, IBM, Research Triangle Park, United States*
	Efficient Computation of the Shielding Effectiveness of Metallic Enclosures Loaded with Conductors *R. Araneo, G. Lovat, "La Sapienza" University of Rome, Roma, Italy*
	A Study for Grounding Effect to Improve Performance of WWAN *S. R. Yoon[1], S. K. Lee[1], K. S. Lee[1], O. S. Choi[1], N. D. Kim[1], K. C. Kim[2], Y. W. Park[2], [1]Samsung Electronics, Yongin-City, Republic of Korea, [2]Yeungnam University, Gyeongsan-City, Republic of Korea*
	Synchronous Rectified Step-Down Converter Susceptibility to Conducted and Radiated EMI *C. Rostamzadeh, Robert Bosch LLC, Plymouth, United States*
	HF RFID Electromagnetic Emissions and Performance *D. Novotny, J. Guererri , M. Francis, K. Remley, NIST, Boulder, United States*

Wednesday AM

Computational EM 2

Session Chair: Charles Bunting, Oklahoma State

8:30 - 9:00	**Simulation and Measurement of Low Frequency Open Surface Magnetic Field Shielding** *J. D. Brunett, V. V. Liepa, University of Michigan, Ann Arbor, United States*
9:00 - 9:30	**Evaluation of Equipment-Level Enclosure Shielding Properties in a Reverberation Chamber: Numerical and Experimental Analysis** *D. Fedeli, G. Gradoni, V. Mariani Primiani, F. Moglie, Universita` Politecnica delle Marche, Ancona, Italy*
9:30 - 10:00	**Domain Separation with Port Interfaces for Calculation of Emissions from Enclosure Slots.** *C. Poschalko[1], S. Selberherr[2], [1]Robert Bosch AG, Vienna, Austria, [2]Technische Universität Wien, Vienna, Austria*

EMC Management

Session Chair: Bob Scully, IBM

10:30 - 11:00	**An Electromagnetic Compatibility Course for Computer Engineers** *N. Ida, The University of Akron, Akron, United States*
11:00 - 11:30	**Problematic Concepts in the Introduction of EMC** *A. S. de Beer, University of Johannesburg, Johannesburg, South Africa*
11:30- 12:00	**Structure for the Introduction of EMC Design** *A. S. de Beer, University of Johannesburg, Johannesburg, South Africa*

PCB Design 2

Session Chair: Philip Keebler, Electric Power Research Institute

8:30 - 9:00	**A Study of Grounded-Heatspreader for EMI Mitigation of ASIC IC Package** *A. U. Bhobe, P. Sochoux, Cisco Systems, San Jose, United States*
9:00 - 9:30	**PCB Ground Fill Design Guidelines for EMI** *W. Pan[1], D. Pommerenke[1], S. Xu[2], J. Jia[2], [1]Missouri University of Science and Technology, Rolla, United States, [2]Huawei Technologies Co., Ltd., Shenzhen, China*
9:30 - 10:00	**Transient Detection Circuit for System-Level ESD Protection and Its On-Board Behavior with EMI/EMC Filters** *M. Ker, C. Liao, C. Yen, National Chiao-Tung University, Hsin-Chu, Taiwan*
10:30 - 11:00	**Advanced full wave ESD generator model for system level coupling simulation** *Q. Cai[1], D. Pommerenke[1], B. Seol[2], J. Koo[1], A. Nandy[1], J. S. Lee[2], [1]UMR - EMCLAB mst, Rolla, United States, [2]Samsung Electronics, Suwon, Republic of Korea*

TECHNICAL SESSION PAPERS

11:00 - 11:30	**Noise coupling between signal and power/ground nets due to signal vias transitioning through power/ground plane pair** *J. Fan[1], M. Cocchini[1], B. Archambeault[2], J. L. Knighten[3], J. L. Drewniak[1], S. Connor[2], [1]Missouri University of Science and Technology, Rolla, United States, [2]IBM Corporation, Research Triangle Park, United States, [3]NCR Corporation, San Diego, United States*
11:30 - 12:00	**Numerical Investigation of Techniques for Reducing Radiated Emission of PCBs with Attached Cables in Complex Systems** *S. Caniggia[2], F. Maradei[2], [1]EMC Consultant, Bareggio, Italy, [2]Sapienza University of Rome, Rome, Italy*

Measurement Techniques 2
Session Chair: Cliff Hauser, Raytheon

8:30 - 9:00	**Analysis of the MIL-STD-461E and MIL-STD-461F RE102 Test Setup Configurations below 100 MHz** *D. D. Swanson, Lockheed Martin, Eagan, United States*
9:00 - 9:30	**Time Synchronized Near-field and Far-field for EMI Source Identification** *G. Feng, W. Wu, D. Pommerenke, J. Fan, D. G. Beetner, Missouri University of Science and Technology, Rolla, United States*
9:30 - 10:00	**Determination of coupling of UWB pulses into complex PCB line structures using multi-alignment measurements** *K. A. Haake, J. L. ter Haseborg, Hamburg University of Technology , Hamburg, Germany*
10:30 - 11:00	**Analysis on Electrode Speed Correlation of Discharge Parameters Applying Short-gap Electrostatic Discharge Model** *F. Ruan[1,2], Y. Gao[2], D. Shi[2], [1]Guizhou Normal University, Guiyang, China, [2]Beijing University of Post & Telecommunication, Beijing, China*
11:00 - 11:30	**Aspects of Using the IEC-61000-4-20 for Transient Testing with Broadband Signals** *H. Thye, D. Zamow, M. Koch, H. Garbe, Leibniz Universität Hannover, Hannover, Germany*
11:30 - 12:00	**CISPR Specification and Measurement Uncertainty of the Time-domain EMI Measurement System** *S. Braun, A. Frech, P. Russer, Technical University of Munich, Munich, Germany*

Special Session:
Recent Advances in Jitter and BER Analysis in High Speed Serial Links
Session Chair: Qiubo Ye, Communications Research Center Canada

8:30 – 9:00	**Jitter Modeling in Statistical Link Simulation** *Y. Chang, D. Oh, C. Madden, Rambus Inc., Los Altos, United States*
9:00 – 9:30	**Estimation of Very Low BER Using Quasi-Analytical Method** *D. Lu, S. Gupta, M. Marcu, Agilent Technologies Inc., Santa Rosa, United States*
9:30 - 10:00	**Crosstalk Analysis of a System Based on XAUI HM-Zd Evaluation Backplane Data** *B. Katz, M. L. Steinberger, T. Westerhoff, Signal Integrity Software, Inc., Maynard, United States*

10:30 - 11:00	**A Flexible and Efficient Bit Error Rate Simulation Method for High-Speed Differential Link Analysis Using Time-domain Interpolation and Superposition** *K. Xiao[1], B. Lee[2], X. Ye[3], [1]Intel Corporation, DuPont, United States, [2]Intel Corporation, Santa Clara, United States, [3]Intel Corporation, Hillsboro, United States*
11:00 - 11:30	**Statistical Channel Modeling Inclusive of Cross Talk Effects for Bit Error and Eye Analysis** *S. G. Pytel[1], G. Barnes[1], R. I.* Mellitz[2], M. Tsuk[1], R. Holoboff[1], [1]Ansoft, Gilbert, United States, [2]Intel Corporation, Columbia, United States
11:30 - 12:00	**Duty-Cycle Distortion and Specifications for Test-Signal Generation** *M. Marcu, S. Durbha, S. Gupta, Agilent Technologies, Inc., Santa Rosa, United States*
Open Forum 3	
8:30 - 12:00	**An Approach for The Prediction of Sensitive I/O Ports using Noise Distribution on PCB-Level** *M. Taki[1,1], C. Hedayat[1,1], W. John[2,2], [1]University of Paderborn, Paderborn, Germany, [2]Fraunhofer Institute For Reliability and Microintegration, Paderborn, Germany*
	An Optical Feeding Antenna with Wide Bandwidth for Evaluation of Radiated Emission Test Sites above 1 GHz *H. Abe[1], H. Tanaka[1], M. Tokuda[1], S. Ishigami[2,2], [1]Musashi Institute of Technology, Setagaya-Ku, Japan, [2]National Institute of Information and Communications Technology, Koganei-shi, Japan*
	A New Direct Method for SEdB Determination *M. T. Badic[1], L. Aciu[2], P. Ogrutan[2], [1]Research Institute for E.E., Bucharest, Romania, [2]Transilvania University of Brasov, Brasov, Romania*
	A high sensitivity electromagnetic field sensor using resonance *H. Tsutagaya, S. Kazama, Taiyo Yuden Co., Ltd., Takasaki, Japan*
	Assessment of the Robustness of Commercial Data Communication Interfaces to a Military EMI Environment *E. B. Joffe, KTM Project Engineering, Hod Hasharon, Israel*
	Suppression Method of Radiated Emission from Solar Cell on a Photovoltaic Power Generation System *M. Tomisawa, M. Tokuda, Musashi Institute of Technology, Setagaya-ku, Japan*
	An Improved LC Filter for Reduction of WWAN Noise *S. K. Lee[1], K. S. Park[2], S. R. Yoon[1], K. S. Lee[1], O. S. Choi[1], N. D. Kim[1], M. Hayakawa[3], Y. Kami[4], [1]Samsung Electronics, Asan, Republic of Korea, [2]Samsung Electro-Mechanics, Suwon-City, Republic of Korea, [3]University of Electro-Communications, Choufu, Japan, [4]University of Electro-Communications, Choufu, Japan*
	A Finite Element Method for Transient Analysis of Power Electronic Motor Drives Including Parasitic Capacitive Effect and External Circuit *W. Fu, S. Ho, The Hong Kong Polytechnic University, Hong Kong, Hong Kong*

Wednesday PM

Computational EM 3

Session Chair: Jim Knighten, Terdata Corp.

1:30 - 2:00	**Advanced EMC Modeling by Means of a Parallel MLFMM and Coupling with Network Theory** *U. Jakobus, J. van Tonder, M. Schoeman, EM Software & Systems - S.A. (Pty) Ltd, Stellenbosch, South Africa*
2:00 - 2:30	**Validation of MOM/FEM in Modelling Studies of Loaded Enclosures With Apertures** *S. Yenikaya, Uludag University, Bursa, Turkey*
2:30 - 3:00	**Statistical Analysis of Induced Ground Voltage Using the TLM+UT Method** *J. B. Pereira, L. R. Menezes, G. A. Borges, UNB, Brasilia, Brazil*
3:30 - 4:00	**Parameter Extraction of Eddy-current Magnetic Field – Circuit Coupled Problems Using Matrix Analysis Method** *W. Fu, S. Ho, The Hong Kong Polytechnic University, Hong Kong, Hong Kong*
4:00 - 4:30	**Equivalent Radiation Source Extraction Method for System Level EMI and RFI Prediction** *J. Shi[1], J. He[1], E. Chan[1], J. Zhao[2], K. P. Slattery[1], F. Zanella[3], J. Fejfar [3], [1]Intel Corporation, Santa Clara, United States, [2]Sigrity Inc., Santa Clara, United States, [3]CST of America, Boston, United States*
4:30 - 5:00	**A mixed nodal-mesh formulation of the PEEC method based on efficient graph algorithms** *G. Miscione, G. Antonini, D. Frigioni, University of L'Aquila, L'Aquila, Italy*
5:00 - 5:30	**Modeling Experiences with Full-Wave Frequency-Domain Modeling Software** *C. Su, X. He, H. Zeng, H. Ke, T. H. Hubing, Clemson Vehicular Electronics Laboratory, Clemson, United States*

Signal Integrity 2

Session Chair: Mike McOlash, GE Medical

1:30 - 2:00	**Effects of Discrete Bypass Capacitors in Power/Ground Planes with EBG Structures** *M. D. Farzan[1], O. M. Ramahi[2], [1]C-DOT Alcatel-Lucent Research Centre, Chennai, India, [2]University of WAterloo, Waterloo, Canada*
2:00 - 2:30	**Study on the Mitigation of the Resonance due to the Power-Bus Structure using Periodic Metal-Strip Loaded Sheets** *S. Kahng, University of Incheon, Incheon, Republic of Korea*
2:30 - 3:00	**Fast Frequency Domain Crosstalk Analysis for Board-Level EMC Rule Checking and Optimization** *M. Mondal[1], S. Connor[2], B. Archambeault[2], V. Jandhyala[1], [1]University of Washington, Seattle, United States, [2]IBM Corporation, Research Triangle Park, United States*
3:30 - 4:00	**Slots on Ground Fillings of Multi-layer Printed Circuit Board for Suppressing Indirect Crosstalk between Digital Clock Line and RF Signal Line in Mixed Mode Mobile Systems** *J. Pak[1], G. Kim[1], F. Hong[2], A. Kim[2], J. Kim[1], [1]KAIST, Daejeon, Republic of Korea, [2]SAMSUNG ELECTRONICS Co, Suwon, Republic of Korea*

TECHNICAL SESSION PAPERS

4:00 - 4:30	**Using TWDP to quantify channel performance with frequency-domain S-parameter data** *S. Mittal[1], F. De Paulis[1], Z. Yang[2], J. Fan[1], [1]Missouri University of Science and Technology, Rolla, United States, [2]Nuova Systems, San Jose, United States*
4:30 - 5:00	**Link path design on a block-by-block basis** *F. De Paulis[1], J. Diepenbrock[2], B. Archambeault[2], S. Connor[2], A. Orlandi[3], J. Fan[1], [1]Missouri University of Science and Technology, Rolla, United States, [2]IBM Corporation, Research Triangle Park, United States, [3]University of L'Aquila, L'Aquila, Italy*

Measurement Techniques 3
Session Chair: Don Heirman, Don Heirman Consultants

1:30 – 2:00	**Broadband DCI as a multi usable EMC-Test Method** *M. Rothenhaeusler[1], T. Leibl[2], A. Ruhfass[3], [1]EADS, Manching, Germany, [2]Wehrtechnische Dienststelle für Informationstechnologie und Elektronik, Greding, Germany, [3]EADS, Manching, Germany*
2:00 – 2:30	**Detecting E and H Fields with Microstrip Transmission Lines** *T. Chen[1], B. Chou[2], T. Maloney[2], [1]Stanford University, Stanford, United States, [2]Intel Corporation, Santa Clara, United States*
2:30 – 3:00	**A Study of Enclosure Shielding Effectiveness Measurement using Frequency Stirring in a Mode-Stirred Chamber** *Y. He, A. C. Marvin, University of York, York, United Kingdom*
3:30 – 4:00	**The Effect of EUT Position on Gigahertz Transverse Electromagnetic (GTEM) Cell Correlation Algorithms** *M. T. Reich[1], R. M. Nelson[2], C. Bauer-Reich[2], [1]North Dakota State University, Fargo, United States, [2]North Dakota State University, Fargo, United States*
4:00 – 4:30	**Non-contacting Near-field Mapping of Planar Circuits in Microwave Frequency Band** *C. Chen[1], K. Sugawara[1], K. Li[2], H. Nihei[1], T. Anada[1], C. Christopoulos[3], [1]Kanagawa University, Yokohama-shi, Japan, [2]National Institute of Information and Communications Technology(NiCT), Koganei-shi, Japan, [3]Nottingham University, Nottingham, United Kingdom*
4:30 – 5:00	**Defining and Assessing the Uncertainty Contributions in the Line-Injection Measurements of Transfer Impedance** *C. F. Carobbi[1], M. Cati[2], C. Panconi[1], [1]Universita' di Firenze, Firenze, Italy, [2]Esaote S.p.A., Firenze, Italy*

Special Session:
Parallel Processing Algorithms
Session Chair: Al Ruehli, IBM

1:30 – 2:00	**A New Frequency Domain Waveform Relaxation Algorithm for PEEC Models** *G. Antonini[1], A. E. Ruehli[2], [1]University of L'Aquila, L'Aquila, Italy, [2]IBM, Yorktown Heights, United States*
2:00 – 2:30	**The Discontinuous Galerkin Finite Element Time Domain Method (DGFETD)** *S. D. Gedney[1], J. A. Roden[2], C. Luo[1], J. A. Miller[2], J. Beggs[2], B. Guernsey[2], R. D. Crawford[2], T. Kramer[1], [1]The University of Kentucky, Lexington, United States, [2]The Aerospace Corporation, Chantilly, United States*

TECHNICAL SESSION PAPERS

2:30 – 3:00	**Simple Load Balancing in Binary-Tree Based Parallel Multilevel Low-Rank Compression Techniques** *M. Astner, H. Bruens, H. Singer, TU Hamburg-Harburg, Hamburg, Germany*
3:30 – 4:00	**A Fast and Parallel Stroud-Based Stochastic Collocation Method for Statistical EMI/EMC Analysis** *H. Bagci[1], C. Yavuz[1], A. C. Yucel[1], J. S. Hesthaven[2], E. Michielssen[1], [1]Radiation Laboratory, Ann Arbor, United States, [2]Scientific Computing and Numerical Analysis Group , Providence, United States*
4:00 – 4:30	**Enhanced Hybrid MPI-Open-MP Parallel Electromagnetic Simulations Based on Low-Rank Compressions** *X. Wang, V. Jandhyala, Applied Computational Engineering Lab, Seattle, United States*
4:30 – 5:00	**Advanced Parallel Algorithm for the System-Level EMC Modeling of High-Speed Electronic Package** *E. Li, X. Wei, E. Liu, Z. OO, A*STAR Institute of High Performance Computing, Science Park II, Singapore*
Open Forum 4	
1:30 - 5:00	**The Impact of Common Mode Currents on Signal Integrity and EMI in High-Speed Differential Data Links** *S. Connor[1], B. Archambeault[1], M. Mondal[2], [1]IBM Corp., Research Triangle Park, United States, [2]University of Washington, Seattle, United States*
	Experimental Study on DC Biasing Impact on Transforer's Vibration and Sound *H. Ma, J. He, R. Zeng, B. Zhang, S. Chen, L. Cao, Tsinghua University, Beijing, China*
	Generation and Measurement of a Reference Field for Round-Robin Comparison Purposes *C. F. Carobbi[1], M. Cati[2], C. Panconi[1], [1]Universita' di Firenze, Firenze, Italy, [2]Esaote S.p.A., Firenze, Italy*
	Prediction of Parasitic Components in an Automotive Environment *S. Alexandersson, H. Bängtsson, M. Alaküla, Lund University, Lund, Sweden*
	On Determination of Conducted RF Immunity Test Methodology for Automotive Remote Keyless Entry Receivers *C. Rostamzadeh, F. Pavatich, Robert Bosch LLC, Plymouth, United States*
	Investigation on the Shielding Effectiveness of Planar Microstructured Screens *G. Lovat, S. Celozzi, "La Sapienza" University of Rome, Roma, Italy*
	Impact of thermal stress on the characteristics of conducted emissions *A. Tacchini[1], I. Montanari[2], M. Maini[1], [1]Reggio Emilia Innovazione, Reggio Emilia, Italy, [2]University of Modena and Reggio , Reggio Emilia, Italy*

1:30 - 5:00	**Defining a measure for the immunity of analogue to digital converters exposed to electric fields** *T. Aurand, J. F. Dawson, M. P. Robinson, A. C. Marvin, University of York, York, United Kingdom*

Thursday AM

Computational EM 4
Session Chair: J. Alan Roden, Aerospace Corp.

8:30 – 9:00	**Closed-form expressions for determining approximate PMC boundaries around an aperture in a metal cavity wall** *F. De Paulis[1], J. Mix[2], X. Dong[2], D. Hua[2], K. Slattery[2], Y. Zhang[1], J. Fan[1], [1]Missouri University of Science and Technology, Rolla, United States, [2]Intel Corporation, Hillsboro, United States*
9:00 – 9:30	**Efficient Simulation of Narrow Weakly Nonlinear Bandpass System** *I. Demirkiran[1], D. D. Weiner[2], A. Drozd[3], [1]Embry-Riddle Aeronautical University, Daytona Beach, United States, [2]Syracuse University , Syracuse, United States, [3]Andro Computational Solutions, LLC,, Rome, United States*
9:30 - 10:00	**Fundamental Examination about Cooling Approach for a Heated EM-Wave Absorber under High Power Injection** *S. Watanabe, A. Taniguchi, O. Hashimoto, Aoyama Gakuin University, Sagamihara, Japan*
10:30 - 11:00	**High-resolution time-Domain site attenuation measurements using common types of EMC test antennas—a numerical study** *R. T. Johnk, Institute for Telecommunication Sciences (NTIA/ITS), Boulder, United States*
11:00 - 11:30	**HF model of DC motor impedance (EMC problems in automotive applications)** *R. Kahoul[1,2], Y. Azzouz[2], P. Marchal[1], B. Mazari[2], [1]Faurecia, Audincourt, France, [2]Irseem, St Etienne du Rouvray, France*
11:30 - 12:00	**Time varying instruction current EMC simulation improvement** *S. Yuan, H. Chung , C. Chen, S. Liao , Feng Chia University, Taichung, Taiwan*

Electromagnetic Coupling
Session Chair: John Archer

8:30 – 9:00	**Transient analysis of crosstalk coupling between high-speed carbon nanotube interconnects** *M. D'Amore, M. Sarto, A. Tamburrano, University of Rome Sapienza, Rome, Italy*
9:00 – 9:30	**Modeling of the Substrate Coupling Path for Direct Power Injection in Integrated Circuits** *A. Alaeldine[1,2], R. Perdriau[1], M. Ramdani[1], E. Sicard[3], M. Drissi[2], A. M. Haidar[4], [1]ESEO Angers – LATTIS, Angers Cedex 01, France, [2]IETR – INSA de Rennes, Rennes Cedex, France, [3]LATTIS – INSA de Toulouse, Toulouse Cedex 04, France, [4]Beirut Arab University, Faculty of Engineering, Beirut, Lebanon*
9:30 - 10:00	**An estimation of the backdoor coupling of UWB pulses on commercial wireless USB adapters** *C. Kluender, J. ter Haseborg, Hamburg University of Technology, Hamburg, Germany*

10:30 - 11:00	**A Study on Electromagnetic Coupling between Transmission Line on Model Chip** *Y. Kayano, H. Inoue, Akita University, Akita, Japan*

Test Facilities and Instrumentation
Session Chair: Tom Fagan, Raytheon

8:30 – 9:00	**Influence of the Receiving Antenna Pattern on the Site VSWR Validation Procedure above 1 GHz** *S. Battermann, H. Garbe, Leibniz Universität Hannover, Hannover, Germany*
9:00 – 9:30	**Absorber Loading Study in FOI 36.7 m3 Mode Stirred Reverberation Chamber for Pulsed Power measurements.** *O. Lunden[1], M. Backstrom[2], [1]Swedish Defence Reseach Agency, Linkoping, Sweden, [2]Saab Communication, Linkoping, Sweden*
9:30 - 10:00	**Shielding Effectiveness of flat samples and conductive gaskets: new measuring cell for the frequency range 1-18 GHz** *J. A. Catrysse, Khbo, Oostende, Belgium*
10:30 - 11:00	**Response of a Magnetic Loop Probe to the Current and Voltage on a Microstrip Line** *M. Spang[1], G. Schubert[2], M. Albach[1], [1]Friedrich-Alexander University, Erlangen, Germany, [2]Continental Automotive Systems, Nuremberg, Germany*
11:00 - 11:30	**The Repeatability of System Level ESD Test and Relevant ESD Generator Parameters** *J. Koo[1], Q. Cai[1], K. Wang[2], J. Mass[3], M. Hirata[4], A. Martwick[2], D. Pommerenke[1], [1]Missouri University of Science and Technology, Rolla, United States, [2]Intel Corporation, Hillsboro, United States, [3]IBM Corporation, Rochester, United States, [4]Fuji Xerox Corporation, Kanagawa, Japan*
11:30 - 12:00	**Orthogonal Loops Probe Design and Characterization for Near-Field Measurement** *T. Li, Y. Ho, D. J. Pommerenke, Missouri University of Science and Technology, Rolla, United States*

Special Session:
Impact of External Noise Sources on High Speed Signal Integrity
Session Chair: Bruce Archambeault, IBM

8:30 - 9:00	**Quantifying EM noise coupling to antenna coax cable placed in a digital device** *S. Ikami, A. Sakurai, IBM Japan, Ltd, Yamato, Japan*
9:00 - 9:30	**Signal Integrity Testing using Multiple Out-of-Band Sources in a Reverberation Chamber** *A. Duffy[1], A. Orlandi[2], H. Nisanci[2], K. Armstrong[3], [1]De Montfort University, Leicester, United Kingdom, [2]University of L'Aquila, L'Aquila, Italy, [3]Cherry Clough Consultants, Brocton, Stafford, United Kingdom*
9:30 - 10:00	**The Impact of External RF Energy on High-Speed Differential Signal Quality of Long Cables** *S. Connor, B. Archambeault, J. C. Diepenbrock, IBM Corp., Research Triangle Park, United States*

TECHNICAL SESSION PAPERS

10:30-11:00	**Noise Coupling Between Power/Ground Nets Due to Differential Vias Transitions in a Multilayer PCB** *M. Cocchini[1], J. Fan[1], B. Archambeault[2], J. Knighten[3], X. Chang[1], J. Drewniak[1], S. Connor[2], Y. Zhang[1], [1]UMR/MST EMC Laboratory, Missouri University of Science and Technology, Rolla, United States, [2]IBM Corporation, RTP , Research Triangle Park, United States, [3]Teradata Corporation, San Diego, United States*

Thursday PM

Computational EM 5

Session Chair: Sam Connor, IBM

2:30 – 3:00	**A Fast Radiated Emission Model for Arbitrary Cable Harness Configurations Based on Measurements and Simulations** *H. M. Rebholz, S. Tenbohlen, Universität Stuttgart, Stuttgart, Germany*
3:00 – 3:30	**Electromagnetic PCB Pattern Modeling Techniques for RF Hardware Simulation of Mobile Phones** *Y. Kim, S. Kwon, A. S. Kim, Samsung Electronics Co., ltd., Suwon, Republic of Korea*
3:30 – 4:00	**Radiated Emission of Bent Microstrip Line Using Hertzian Dipole Method** *S. K. Yee[1,1], M. Z. Mohd Jenu[2,2], [1]Universiti Tun Hussein Onn Malaysia , Batu Pahat, Malaysia, [2]Universiti Tun Hussein Onn Malaysia , Batu Pahat, Malaysia*
4:00 – 4:30	**Prediction of the Common-mode Radiated Emission from the Board to Board Interconnection through Common-mode Antenna Model** *M. Torigoe[4,1], A. Sadatoshi[1], T. Watanabe[2], K. Iokibe[1], Y. Toyota[1], R. Koga[1], O. Wada[3], [1]Okayama University, Okayama, Japan, [2]Industrial Technology Center of Okayama Prefecture, Okayama, Japan, [3]Kyoto University, Kyoto, Afghanistan, [4]Hitachi, Ltd., Hitachi, Japan*
4:30 – 5:00	**EMC Macro-modeling of CMOS Inverter Using LECCS-I/O Model with Additional Current Source** *K. Iokibe[1], A. Osaki[1], O. Wada[2], Y. Toyota[1], R. Koga[1], [1]Okayama Univ., Okayama, Japan, [2]Kyoto Univ., Kyoto, Japan*

Emissions and Immunity

Session Chair: Ed Hare, American Radio Relay League

2:30 - 3:00	**Improvement of Dispersion of Radiated Emission Measurement Results by VHF-LISN** *C. Miyazaki[1], K. Tanakajima[2], M. Yamaguchi[3], S. Satake[4], J. Kawano[5], [1]Mitsubishi Electric Corporation, Kanagawa, Japan, [2]Intertek Japan K.K., Ibaraki, Japan, [3]EMC Education, Tokyo, Japan, [4]Hitachi, Ltd., Tokyo, Japan, [5]VCCI, Tokyo, Japan*
3:00 - 3:30	**Assessing the performance of ZigBee in a reverberant environment using a mode stirred chamber** *D. Hope[1], J. Dawson[1], A. Marvin[1], M. Panitz[2], C. Christopoulos[2], P. Sewell[2], [1]University of York, York, United Kingdom, [2]University of Nottingham, Nottingham, United Kingdom*
3:30 - 4:00	**EMC Characterization for Switching Noise Investigation on Power Transistors** *E. Batista[1], J. Dienot[2], [1]Power Electronics Associated Research Laboratory, Semeac, France, [2]University Institute of Technology, Tarbes, France*
4:00 - 4:30	**Measured Radiated Field From UWB Signal Over Powerline Channel** *G. Mekuria, H. Hirsch, Universität Duisburg-Essen, Duisburg, Germany*

TECHNICAL SESSION PAPERS

4:30 - 5:00	**Evaluation of Interference between MB-OFDM UWB and Wireless LAN Systems using a GTEM Cell** *H. Kamiya[1], M. Yamada[1], S. Ishigami[2,2], K. Gotoh[2,2], Y. Matsumoto[2,2], M. Tokuda[1], [1]Musashi Institute of Technology, Setagaya-ku, Japan, [2]National Institute of Information and Communications Technology, Koganei-shi, Japan*

Shielding

Session Chair: Keith Frazier, Ford Motor Company

2:30 - 3:00	**Fundamental Models for Near Field Shielding** *R. J. Mohr, R. J. Mohr Associates, Inc., Northport, United States*
3:00 - 3:30	**EMI Gasket Shielding Effectiveness Evaluation Method Using Transmission Theory** *D. Moongilan, E. E. Mitchell, Alcatel-Lucent, Murray Hill, United States*
3:30 - 4:00	**Using Conductive Plastic for EMC Cover Shielding** *T. L. McMillan, IBM, Rochester, United States*
4:00 - 4:30	**Shielding Effectiveness with a Twist** *P. F. Keebler, K. O. Phipps, EPRI, Knoxville, United States*
4:30 - 5:00	**Shielding Analysis of Enclosure with Aperture irradiated by Plane Wave with arbitrary incident Angle and Polarization Direction** *D. Shi[2], Y. Shen[2], F. Ruan[2], Z. Wei[1,2], Y. Gao[2], [1]Beijing Unversity of Posts & Telecommunications, Beijing, China, [2]Zhongan Company, Guang Zhou, China*

Product Safety

Session Chair: Richard Georgerian, Intertek

2:30 - 3:00	**Effects of Thermoregulatory Mechanisms on the Eye Thermal Elevation Produced by Intense RF Exposures** *V. De Santis, M. Feliziani, University of L'Aquila, L'Aquila, Italy*
3:00 - 3:30	**EMC for the Functional Safety of Automobiles Why EMC Testing is Insufficient, and What is Necessary** *K. Armstrong, Cherry Clough Consultants, Stafford, United Kingdom*
3:30 - 4:00	**Assessment of Active Implantable Medical Device Interaction in Hybrid Electric Vehicles** *J. J. Nelson[1], W. Clement[2], B. Martel[3], K. H. Nelson[4,5], [1]Daimler AG, Stuttgart, Germany, [2]Medtronic Inc., Minneapolis, United States, [3]General Motors, Milford, United States, [4]Detroit Medical Center , Detroit, United States, [5]Wayne State University, Detroit, United States*
4:00 - 4:30	**Antenna performance of mobile phone and corresponding human exposure inside fully and partially enclosed metallic elevator** *C. Tang, K. Chan, L. Fung, S. Leung, City University of Hong Kong, Hong Kong, SAR, Hong Kong*