

2015 IEEE International Symposium on Electromagnetic Compatibility

(EMC 2015)

**Dresden, Germany
16-22 August 2015**

Pages 773-1564



**IEEE Catalog Number: CFP15EMC-POD
ISBN: 978-1-4799-6617-2**

TABLE OF CONTENTS – TECHNICAL PAPERS

MONDAY, AUGUST 17, 2015

Monday, August 17, 2015

SS-2 Shielding Measurements from LF to Microwave

Chair: Johan Catrysse, KU Leuven, Ostend, Belgium

Co-Chair: Davy Pissoort, KU Leuven, Ostend, Belgium

2:00 pm	Modelling the Micro-Structure of Non-Uniform Conductive Non-Woven Fabrics: Determination of Sheet Resistance	1
	A.N. Austin (<i>University of York, York, United Kingdom</i>); J.F. Dawson (<i>University of York, York, United Kingdom</i>); I.D. Flintoft (<i>University of York, York, United Kingdom</i>); A.C. Marvin (<i>University of York, York, United Kingdom</i>)	
2:25 pm	Towards a Stripline Setup to Characterise the Effects of Corrosion and Ageing on the Shielding Effectiveness of EMI Gaskets	7
	D. Pissoort (<i>KU Leuven, Ostend, Belgium</i>); J. Catrysse (<i>KU Leuven, Ostend, Belgium</i>); T. Claeys (<i>KU Leuven, Ostend, Belgium</i>); F. Vanhee (<i>KU Leuven, Ostend, Belgium</i>); B. Boesman (<i>KU Leuven, Ostend, Belgium</i>); C. Brull (<i>Schlegel Electronic Materials, Leffinge, Belgium</i>)	
2:50 pm	Differences between NSA 94-106 and IEEE 299 LF Magnetic Shielding Measurements	13
	Johan Catrysse (<i>KU Leuven, Ostend, Belgium</i>); Filip Vanhee (<i>KU Leuven, Ostend, Belgium</i>); Davy Pissoort (<i>KU Leuven, Ostend, Belgium</i>); Salvatore Celozzi (<i>University of Roma "La Sapienza", Roma, Italy</i>)	
3:15 pm	Shielding Effectiveness of Anisotropic Materials: How to Measure?	17
	Johan Catrysse (<i>KU Leuven, Ostend, Belgium</i>); Filip Vanhee (<i>KU Leuven, Ostend, Belgium</i>); Tim Claeys (<i>KU Leuven, Ostend, Belgium</i>); Andy Degraeve (<i>KU Leuven, Ostend, Belgium</i>); Davy Pissoort (<i>KU Leuven, Ostend, Belgium</i>)	
3:40 pm	Shielding Effectiveness Measurements of Materials and Enclosures using a Dual Vibrating Intrinsic Reverberation Chamber	23
	Hans Schipper (<i>Thales Nederland B.V., Hengelo, Netherlands</i>); Frank Leferink (<i>Thales Nederland B.V. and University of Twente, Hengelo, and Enschede, Netherlands</i>)	

TUESDAY, AUGUST 18, 2015

Tuesday, August 18, 2015

TC-4 Circuits and Devices

Chair: John Kraemer, Rockwell Collins, Cedar Rapids, IA, USA

- 10:20 am **The Investigation of Frequency Modulation in Voltage-Controlled Oscillator due to Low Frequency Interference from Supply Voltage** 29
Le Zhang (*Zhejiang University, Hangzhou, China*); Xiao-Peng Yu (*Zhejiang University, Hangzhou, China*); Er-Ping Li (*Zhejiang University, Hangzhou, China*)
- 10:45 am **Increased EMI Immunity in CMOS Operational Amplifiers using an Integrated Common-Mode Cancellation Circuit** 34
Marco Grassi (*University of Brescia, Brescia, Italy*); Jean-Michel Redouté (*Monash University, Melbourne, Australia*); Anna Richelli (*University of Brescia, Brescia, Italy*)
- 11:10 am **On the Effectiveness of EMIRR to Qualify OpAmps** 40
Marco Brignone Aimonetto (*Politecnico di Torino, Torino, Italy*); Franco Fiori (*Politecnico di Torino, Torino, Italy*)
- 11:35 am **Prediction of the Robustness of Integrated Circuits against EFT/BURST** 45
Susanne Bauer (*Graz University of Technology, Graz, Austria*); Bernd Deutschmann (*Graz University of Technology, Graz, Austria*); Gunter Winkler (*Graz University of Technology, Graz, Austria*)

TC-4 Shielding I

Chair: Frank Leferink, Thales Nederland B.V., Hengelo, Netherlands and University of Twente, Enschede, Netherlands

- 2:00 pm **Suppression of End-Fired Emission for a Miniaturized-Element Frequency-Selective Shielding Surface with Finite Size using EBG** 50
Yi-Min Yu (*National Taiwan University, Taipei, Taiwan*); Cheng-Nan Chiu (*Da-Yeh University, Changhua, Taiwan*); Yih-Ping Chiou (*National Taiwan University, Taipei, Taiwan*); Tzong-Lin Wu (*National Taiwan University, Taipei, Taiwan*)
- 2:25 pm **Hole inductance in Braided Cable Shields** 56
H. Schippers (*National Aerospace Laboratory, Marknesse, Netherlands*); J. Verpoorte (*National Aerospace Laboratory, Marknesse, Netherlands*)
- 2:50 pm **Effect of Gland Quality on the Screening Effectiveness of Cable-Connector Assemblies** 62
Patrick Deschênes (*Thales Nederland B.V., Hengelo, Netherlands*); Rob Bijman (*Thales Nederland B.V., Hengelo, Netherlands*); Frank Leferink (*Thales Nederland B.V. and University of Twente, Hengelo, and Enschede, Netherlands*)

TC-4 Shielding II

- 4:00 pm **External Scattering by Rectangular Cavities with Small Apertures** 68
Jörg Petzold (*Otto-von-Guericke University, Magdeburg, Germany*); Enrico Pannicke (*Otto-von-Guericke University, Magdeburg, Germany*); Sergey Tkachenko (*Otto-von-Guericke University, Magdeburg, Germany*); Ralf Vick (*Otto-von-Guericke University, Magdeburg, Germany*)

4:25 pm	Measurement of Radio Signal Propagation through Window Panes and Energy Saving Windows	74
	<i>Per Ångskog (KTH Royal Institute of Technology and University of Gävle, Stockholm, and Gävle, Sweden); Mats Bäckström (KTH Royal Institute of Technology and Saab Aeronautics, Stockholm, and Linköping, Sweden); Bengt Vallhagen (Saab Aeronautics, Linköping, Sweden)</i>	
4:50 pm	A Study on Transmission Characteristics and Shielding Effectiveness of Shielded-Flexible Printed Circuits for Differential-Signaling	80
	<i>Yoshiki Kayano (Akita Univ., Akita, Japan); Hiroshi Inoue (The Open Univ. of Japan, Akita, Japan)</i>	
5:15 pm	Characterisation of Cable Feedthrough by Measurements in Nested Reverberation Chambers and Comparison with Simple Theory	86
	<i>Jan Carlsson (SP Technical Research Institute of Sweden, Borås, Sweden); Kristian Karlsson (SP Technical Research Institute of Sweden, Borås, Sweden); Urban Lundgren (SP Technical Research Institute of Sweden, Borås, Sweden)</i>	

TC-7 Low Frequency Electromagnetic Compatibility I

Chair: Alexander van Deursen, Netherlands

Co-Chair: Dave Thomas, University of Nottingham, Nottingham, United Kingdom

10:20 am	Efficient Analysis and Reduction of Magnetic Near-Field-Coupling in Mixed-Signal PCBs via the Reciprocity Principle	91
	<i>Andreas Mantzke (Otto-von-Guericke University, Magdeburg, Germany); Marco Leone (Otto-von-Guericke University, Magdeburg, Germany); Thomas Fischer (Sivantos GmbH, Erlangen, Germany)</i>	
10:45 am	Effects of Single Tone RF Interferences on Chopped Operational Amplifiers	96
	<i>Andrea Lavarda (Graz University of Technology, Graz, Austria); Bernd Deutschmann (Graz University of Technology, Graz, Austria)</i>	
11:10	Benefits of Multiphase Buck Converters in Reducing EME (Electromagnetic Emissions) Analysis and Application to On-Chip Converters for Automotive Applications	102
	<i>Guillaume Aulagnier (Freescale Semiconductor, Toulouse, France); Kamel Abouda (Freescale Semiconductor, Toulouse, France); Eric Rolland (Freescale Semiconductor, Toulouse, France); Marc Cousineau (University of Toulouse, Toulouse, France); Thierry Meynard (University of Toulouse, Toulouse, France)</i>	

TC-7 Low Frequency Electromagnetic Compatibility II

Chair: Alexander van Deursen, Netherlands

Co-Chair: Dave Thomas, University of Nottingham, Nottingham, United Kingdom

2:00 pm	Filter for the Measurement of Supraharmonics in Public Low Voltage Networks	108
	<i>Matthias Klatt (Technische Universität Dresden, Dresden, Germany); Jan Meyer (Technische Universität Dresden, Dresden, Germany); Peter Schegner (Technische Universität Dresden, Dresden, Germany); Robert Wolf (Technische Universität Dresden, Dresden, Germany); Bernhard Wittenberg (Netze BW GmbH, Stuttgart, Germany)</i>	
2:25 pm	Transfer Characteristic of a MV/LV Transformer in the Frequency Range between 2 kHz and 150 kHz	114
	<i>Stefan Schöttke (Technische Universität Dresden, Dresden, Germany); Stephan Rademacher (Technische Universität Dresden, Dresden, Germany); Jan Meyer (Technische Universität Dresden, Dresden, Germany); Peter Schegner (Technische Universität Dresden, Dresden, Germany)</i>	
	<i>Best Paper Award Finalist</i>	

2:50 pm	Contributing Factors in the Final Performance of a Common Mode Choke	120
	Anne Roc'h (<i>Eindhoven University of Technology, Eindhoven, Netherlands</i>); Frank Leferink (<i>Thales Nederland B.V. and University of Twente, Hengelo, and Enschede, Netherlands</i>)	
3:15 pm	Power System Series Resonance Studies by Modified Admittance Scan	N/A
	Felix O. Kalunta (<i>University of Lagos, Lagos, Nigeria</i>); Frank N. Okafor (<i>University of Lagos, Lagos, Nigeria</i>); Osita U. Omeje (<i>University of Lagos, Lagos, Nigeria</i>)	

TC-7 Low Frequency Electromagnetic Compatibility III

Chair: Alexander van Deursen, Netherlands

Co-Chair: Dave Thomas, University of Nottingham, Nottingham, United Kingdom

4:00 pm	EMI Modeling of Switching Circuits via Augmented Equivalents and Measured Data	130
	Riccardo Trinchero (<i>Politecnico di Torino, Torino, Italy</i>); Igor S. Stievano (<i>Politecnico di Torino, Torino, Italy</i>); Flavio G. Canavero (<i>Politecnico di Torino, Torino, Italy</i>)	
4:25 pm	Prediction of the Conducted Emission Generated by the Electrified Railway Traction System	134
	Kelin Jia (<i>Bombardier Transportation Sweden AB, Västerås, Sweden</i>); David Ribbenfjard (<i>Bombardier Transportation Sweden AB, Västerås, Sweden</i>)	
4:50 pm	On Harmonic Source Identification in Power Distribution Network with Multiple Non-Linear Load	N/A
	Osita U. Omeje (<i>University of Lagos, Lagos, Nigeria</i>); Frank N. Okafor (<i>University of Lagos, Lagos, Nigeria</i>); Felix O. Kalunta (<i>Federal Institute of Industrial Research, Lagos, Nigeria</i>)	
5:15 pm	DWT Analysis of High Order Harmonics Influence over Distorted Regimes with Fast Variable Loads	144
	Ileana-Diana Nicolae (<i>University of Craiova, Craiova, Romania</i>); Petre-Marian Nicolae (<i>University of Craiova, Craiova, Romania</i>); Ionut-Daniel Smărăndescu (<i>University of Craiova, Craiova, Romania</i>)	

SC-4 EMC for Emerging Wireless Technologies I

Chair: Robert Kebel, Airbus Deutschland GmbH, Hamburg, Germany

10:20 am	Interference Test Method for Low-Power Wireless Sensor Networks	150
	Ramiro Serra (<i>Eindhoven University of Technology, Eindhoven, Netherlands</i>); Majid Nabi (<i>Eindhoven University of Technology, Eindhoven, Netherlands</i>)	
10:45 am	Measurement Validation for Radio-Frequency Interference Estimation by Reciprocity Theorem	154
	Liang Li (<i>Missouri University of Science and Technology, Rolla, MO, USA</i>); Jingnan Pan (<i>Missouri University of Science and Technology, Rolla, MO, USA</i>); Chulsoon Hwang (<i>Samsung Electronics, Suwon, South Korea</i>); Gyuyeong Cho (<i>Samsung Electronics, Suwon, South Korea</i>); Harkbyeong Park (<i>Samsung Electronics, Suwon, South Korea</i>); Yaojiang Zhang (<i>Missouri University of Science and Technology, Rolla, MO, USA</i>); Jun Fan (<i>Missouri University of Science and Technology, Rolla, MO, USA</i>)	
11:10 am	Performance Estimation of DSSS Wireless Systems in Impulsive Interference	160
	Sara Örn Tengstrand (<i>Swedish Defence Research Agency, Linköping, Sweden</i>); Peter Stenumgaard (<i>Swedish Defence Research Agency, Linköping, Sweden</i>)	

11:35 am	Interference Impact on LTE from Radiated Emission Limits	165
	Peter Stenumgaard (<i>Swedish Defence Research Agency, Linköping, Sweden</i>); Karina Fors (<i>Swedish Defence Research Agency, Linköping, Sweden</i>); Kia Wiklundh (<i>Swedish Defence Research Agency, Linköping, Sweden</i>)	

SC-4 EMC for Emerging Wireless Technologies II

Chair: Jun Fan, Missouri University of Science and Technology, Rolla, MO, USA

2:00 pm	Using the Amplitude Variation of a Reverberation Chamber Channel to Predict the Synchronization of a Wireless Digital Communication Test System	171
	Ray R. Tanuhardja (<i>National Institute of Standards and Technology and University of Twente, Boulder, CO and Enschede, USA and Netherlands</i>); Luis A. Gonzalez (<i>University of Colorado, Boulder, CO, USA</i>); Chih-Ming Wang (<i>National Institute of Standards and Technology, Boulder, CO, USA</i>); William F. Young (<i>National Institute of Standards and Technology, Boulder, CO, USA</i>); Kate A. Remley (<i>National Institute of Standards and Technology, Boulder, CO, USA</i>); John M. Ladbury (<i>National Institute of Standards and Technology, Boulder, CO, USA</i>)	
2:25 pm	Impact of Different Interference Types on an LTE Communication Link using Conducted Measurements	177
	Peter Ankarson (<i>SP Technical Research Institute of Sweden, Borås, Sweden</i>); Jan Carlsson (<i>SP Technical Research Institute of Sweden, Borås, Sweden</i>); Björn Bergqvist (<i>Volvo Car Corporation, Gothenburg, Sweden</i>); Stefan Larsson (<i>Volvo Group Trucks Technology, Gothenburg, Sweden</i>); Markel Bertilsson (<i>SP Technical Research Institute of Sweden, Borås, Sweden</i>)	
2:50 pm	The Risk of Coexistence Problems between DAB and DVB-T2 and Military Services at the 225-240 MHz band	183
	K. Wiklundh (<i>Swedish Defence Research Agency, Linköping, Sweden</i>); K. Fors (<i>Swedish Defence Research Agency, Linköping, Sweden</i>); P. Holm (<i>Swedish Defence Research Agency, Linköping, Sweden</i>)	
3:15 pm	Mitigation of Co-Channel Interference by Transmit Power Control	189
	Patrik Eliardsson (<i>Swedish Defence Research Agency, Linköping, Sweden</i>); Kia Wiklundh (<i>Swedish Defence Research Agency, Linköping, Sweden</i>); Erik Axell (<i>Swedish Defence Research Agency, Linköping, Sweden</i>); Peter Stenumgaard (<i>Swedish Defence Research Agency, Linköping, Sweden</i>)	

SC-4 EMC for Emerging Wireless Technologies III

Chair: Jun Fan, Missouri University of Science and Technology, Rolla, MO, USA

4:00 pm	A Numerical Dosimetry Study of a Wearable RFID Reader Antenna for Navy Personnel Localization	194
	T. Campi (<i>University of L'Aquila, L'Aquila, Italy</i>); S. Cruciani (<i>University of L'Aquila, L'Aquila, Italy</i>); V. De Santis (<i>University of L'Aquila, L'Aquila, Italy</i>); S. Di Francesco (<i>University of L'Aquila, L'Aquila, Italy</i>); E. Di Giampaolo (<i>University of L'Aquila, L'Aquila, Italy</i>); R. Di Pompeo (<i>University of L'Aquila, L'Aquila, Italy</i>); M. Feliziani (<i>University of L'Aquila, L'Aquila, Italy</i>); P. Tognolatti (<i>University of L'Aquila, L'Aquila, Italy</i>)	
4:25 pm	Electromagnetic Environment Mapping for the Assessment of Critical Wireless Services in ISM Bands	198
	Patrik Eliardsson (<i>Swedish Defence Research Agency, Linköping, Sweden</i>); Björn Gabrielsson (<i>Swedish Defence Research Agency, Linköping, Sweden</i>); Mikael Alexandersson (<i>Swedish Defence Research Agency, Linköping, Sweden</i>); Karina Fors (<i>Swedish Defence Research Agency, Linköping, Sweden</i>); Peter F. Stenumgaard (<i>Swedish Defence Research Agency, Linköping, Sweden</i>)	

SS-1 Smart Grid EMC

Chair: Don Heirman, Don HEIRMAN Consultants, Lincroft, NJ, USA

- 10:20 am **Impact of Rogowski Sensors on the EMC Performance of Medium Voltage Power Substations** 203
Christian Suttner (*University of Stuttgart, Stuttgart, Germany*); Stefan Tenbohlen (*University of Stuttgart, Stuttgart, Germany*); Werner Ebbinghaus (*ABB AG, Ratingen, Germany*)
Best Paper Award Finalist
- 10:45 am **Electromagnetic Time Reversal Applied to Fault Detection: The Issue of Losses** 209
Gaspard Lugrin (*EPFL, Lausanne, Switzerland*); Reza Razzaghi (*EPFL, Lausanne, Switzerland*); Farhad Rachidi (*EPFL, Lausanne, Switzerland*); Mario Paolone (*EPFL, Lausanne, Switzerland*)
- 11:10 am **Predicting Conducted Emissions of Multiple VSCs using Dimension Reduction Technique** 213
P.M. Ivry (*University of Nottingham, Nottingham, United Kingdom*); O.A. Oke (*University of Nottingham, Nottingham, United Kingdom*); D.W.P. Thomas (*University of Nottingham, Nottingham, United Kingdom*); M. Sumner (*University of Nottingham, Nottingham, United Kingdom*)

SS-1 EM Information Security and Countermeasures I

Chair: Yuichi Hayashi, Tohoku University, Sendai, Japan

Co-Chair: William Radasky, Metatech Corporation, Goleta, CA, USA

- 2:00 pm **Comparison of Electromagnetic Side-Channel Energy Available to the Attacker from Different Computer Systems** 219
Robert Callan (*Georgia Institute of Technology, Atlanta, GA, USA*); Nina Popovic (*Georgia Institute of Technology, Atlanta, GA, USA*); Angel Daruna (*Georgia Institute of Technology, Atlanta, GA, USA*); Eric Pollman (*Georgia Institute of Technology, Atlanta, GA, USA*); Alenka Zajic (*Georgia Institute of Technology, Atlanta, GA, USA*); Milos Prvulovic (*Georgia Institute of Technology, Atlanta, GA, USA*)
- 2:25 pm **Security Simulation against Side-Channel Attack on Advanced Encryption Standard Circuit based on Equivalent Circuit Model** 224
Kengo Iokibe (*Okayama University, Okayama, Japan*); Kazuhiro Maeshima (*Okayama University, Okayama, Japan*); Tetsushi Watanabe (*Industrial Technology Center of Okayama Prefecture, Okayama, Japan*); Yoshitaka Toyota (*Okayama University, Okayama, Japan*)
- 2:50 pm **Advanced Fault Analysis Techniques on AES** 230
Kazuo Sakiyama (*The University of Electro-Communications, Tokyo, Japan*); Takanori Machida (*The University of Electro-Communications, Tokyo, Japan*); Arisa Matsubara (*The University of Electro-Communications, Tokyo, Japan*)
- 3:15 pm **Method for Estimating Fault Injection Time on Cryptographic Devices from EM Leakage** 235
Ko Nakamura (*Tohoku University, Sendai, Japan*); Yu-ichi Hayashi (*Tohoku University, Sendai, Japan*); Naofumi Homma (*Tohoku University, Sendai, Japan*); Takaaki Mizuki (*Tohoku University, Sendai, Japan*); Takafumi Aoki (*Tohoku University, Sendai, Japan*); Hideaki Sone (*Tohoku University, Sendai, Japan*)

SS-1 EM Information Security and Countermeasures II

Chair: Yuichi Hayashi, Tohoku University, Sendai, Japan

Co-Chair: William Radasky, Metatech Corporation, Goleta, CA, USA

- 4:00 pm **Detection Method for Overclocking by Intentional Electromagnetic Interference** 241
Atsushi Nagao (*NTT Network Technology Laboratories, Musashino, Japan*); Yuichiro Okugawa (*NTT Network Technology Laboratories, Musashino, Japan*); Kazuhiro Takaya (*NTT Network Technology Laboratories, Musashino, Japan*); Yu-ichi Hayashi (*Tohoku University, Sendai, Japan*); Naofumi Homma (*Tohoku University, Sendai, Japan*); Takafumi Aoki (*Tohoku University, Sendai, Japan*)
Best Paper Award Finalist
- 4:25 pm **Electromagnetic Circuit Fingerprints for Hardware Trojan Detection** 246
Josep Balasch (*KU Leuven, Leuven, Belgium*); Benedikt Gierlichs (*KU Leuven, Leuven, Belgium*); Ingrid Verbauwhede (*KU Leuven, Leuven, Belgium*)
- 4:50 pm **Proactive and Reactive Protection Circuit Techniques Against EM Leakage and Injection** 252
Noriyuki Miura (*Kobe University, Kobe, Japan*); Daisuke Fujimoto (*Kobe University, Kobe, Japan*); Makoto Nagata (*Kobe University, Kobe, Japan*)

TC-1 EMC Management

Chair: Friedrich-Willhelm Trautnitz, Albatross Projects GmbH, Nattheim, Germany

- 10:20 am **A Novel Characterization Method for Cable Ferrites using a TEM-Waveguide Test Setup** 258
Moawia Al-Hamid (*Otto-von-Guericke-University, Magdeburg, Germany*); Marco Leone (*Otto-von-Guericke University, Magdeburg, Germany*); Steffen Schulze (*Wurth Elektronik eiSos GmbH & Co. KG, Waldenburg, Germany*)
- 10:45 am **Electromagnetic Compatibility Levels in Power Plants and Substations** 266
Urban Metod Peterlin (*Milan Vidmar Electric Power Research Institute, Ljubljana, Slovenia*); Tomaž Živic (*Milan Vidmar Electric Power Research Institute, Ljubljana, Slovenia*)
- 11:10 am **Tested Once, Forever Right? Influence of Aging and Temperature on Susceptibility and Emissions** 271
Kai Borgeest (*Aschaffenburg University of Applied Science, Aschaffenburg, Germany*)
- 11:35 am **On the Need of Certification in Computational Electromagnetics based Engineering Services** 277
Sebastian Lange (*Bundeswehr Research Institute for Protective Technologies and NBC Protection, Munster, Germany*); Martin Schaarschmidt (*Bundeswehr Research Institute for Protective Technologies and NBC Protection, Munster, Germany*); Frank Sabath (*Bundeswehr Research Institute for Protective Technologies and NBC Protection, Munster, Germany*)

TC-3 EMC in Communication Systems

Chair: Pierre Degauque, University of Lille, Villeneuve d Ascq Cedex, France

Co-Chair: Randy Jost, Ball Aerospace & Technologies Corporation, Inc., Westminster, CO, USA

- 2:00 pm **Influence of Modern Broadband Inhouse PLC Transmission on Short-Wave Reception** 283
Sven Battermann (*University of Applied Sciences Bielefeld, Minden, Germany*); Heyno Garbe (*Leibniz Universität Hannover, Hannover, Germany*)

2:25 pm	A Novel Method for the Evaluation of Polarization and Hemisphere Coverage of HF Radio Noise Measurement Antennas	289
	Ben A. Witvliet (<i>Radiocommunications Agency Netherlands and University of Twente, Enschede, and Groningen, Netherlands</i>); Erik van Maanen (<i>Radiocommunications Agency Netherlands, Groningen, Netherlands</i>); Mark J. Bentum (<i>University of Twente, Enschede, Netherlands</i>); Cornelis H. Slump (<i>University of Twente, Enschede, Netherlands</i>); Roel Schiphorst (<i>University of Twente, Enschede, Netherlands</i>)	

2:50 pm	Determination of Radiated Emissions of an Electrically Large EUT: Simulation and Experiment	295
	Xiaowei Wang (<i>Otto-von-Guericke-University, Magdeburg, Germany</i>); Ralf Vick (<i>Otto-von-Guericke-University, Magdeburg, Germany</i>)	

EM Environment

Chair: Pierre Degauque, University of Lille, Villeneuve d Ascq Cedex, France

Co-Chair: Randy Jost, Ball Aerospace & Technologies Corporation, Inc., Westminster, CO, USA

4:00 pm	Health Protection Reference Levels for Voltages and Currents in Typical Domestic Electrical Installations	300
	Luis Nuño (<i>Polytechnic University of Valencia, Valencia, Spain</i>)	

4:25 pm	Increasing Electromagnetic Compatibility of Contactless Inductive Flow Tomography	306
	Thomas Wondrak (<i>Helmholtz-Zentrum Dresden-Rossendorf, Dresden, Germany</i>); Matthias Ratajczak (<i>Helmholtz-Zentrum Dresden-Rossendorf, Dresden, Germany</i>); Thomas Gundrum (<i>Helmholtz-Zentrum Dresden-Rossendorf, Dresden, Germany</i>); Frank Stefani (<i>Helmholtz-Zentrum Dresden-Rossendorf, Dresden, Germany</i>); Hans Georg Krauthäuser (<i>Technical University Dresden, Dresden, Germany</i>); Ralf T. Jacobs (<i>Technical University Dresden, Dresden, Germany</i>)	

4:50 pm	Shielding Effectiveness of Screened Rooms with Line Feed-Throughs – A Semi-Analytical Approach	312
	Hamed Karcoon (<i>Helmut Schmidt University, Hamburg, Germany</i>); Stefan Parr (<i>Helmut Schmidt University, Hamburg, Germany</i>); Stefan Dickmann (<i>Helmut Schmidt University, Hamburg, Germany</i>); Ronald Rambousky (<i>Bundeswehr Research Institute for Protective Technologies and NBC Protection, Munster, Germany</i>)	
	<i>Best Paper Award Finalist</i>	

WEDNESDAY, AUGUST 19, 2015

Wednesday, August 19, 2015

TC-4 System EMC Prediction I

Chair: Todd Hubing, Clemson University, Clemson, SC, USA

8:20 am	Systematic Hybrid Modeling Method for Analysis of Electromagnetic Susceptibility in Electronics System	317
	Zaw Zaw Oo (<i>Institute of High Performance Computing, A*STAR, Singapore, Singapore</i>); Bui Viet Phuong (<i>Institute of High Performance Computing, A*STAR, Singapore, Singapore</i>)	

8:45 am	Investigation on the Propagation and Coupling in Aircraft using Absorbing Films	322
	Rafael R. Nunes (<i>German Aerospace Center (DLR), Braunschweig, Germany</i>); Jens Schüür (<i>Technische Universität Braunschweig, Braunschweig, Germany</i>)	
9:10 am	Numerical and Experimental Evaluation of Electromagnetic Coupling between Radiating Antenna Structures inside a Computer Casing	328
	Qi Wu (<i>Technische Universität Hamburg-Harburg, Hamburg, Germany</i>); Alexander Vogt (<i>Technische Universität Hamburg-Harburg, Hamburg, Germany</i>); Heinz-D. Brüns (<i>Technische Universität Hamburg-Harburg, Hamburg, Germany</i>); Frank Gronwald (<i>Technische Universität Hamburg-Harburg, Hamburg, Germany</i>); Christian Schuster (<i>Technische Universität Hamburg-Harburg, Hamburg, Germany</i>)	
9:35 am	The Controlled Stratification Method to Estimate Extreme Quantiles in the Field of EMC Modelling	334
	M. Larbi (<i>IETR-CNRS-INSa de Rennes and CEA, DAM, GRAMAT, Rennes, and Gramat, France</i>); Philippe Besnier (<i>IETR-CNRS-INSa de Rennes, Rennes, France</i>); B. Pecqueux (<i>CEA, DAM, GRAMAT, Gramat, France</i>)	

TC-4 System EMC Prediction II

Chair: Todd Hubing, Clemson University, Clemson, SC, USA

10:20 am	Use of Frequency Selective Surfaces to Reduce Coupling between Antennas on Satellites	340
	Ibrahim Türer (<i>Turkish Aerospace Industries, Inc., Ankara, Turkey</i>)	
10:45 am	Vulnerability and Coupling Behaviour of a TETRA Communication System to Electromagnetic Fields	344
	Michael Camp (<i>Rheinmetall Waffe Munition GmbH, Unterlüß, Germany</i>); Jürgen Schmitz (<i>Rheinmetall Waffe Munition GmbH, Unterlüß, Germany</i>); Markus Jung (<i>Rheinmetall Waffe Munition GmbH, Unterlüß, Germany</i>)	
11:10 am	Application of Dipole-Moment Model in EMI Estimation	350
	Jingnan Pan (<i>Missouri University of Science and Technology, Rolla, MO, USA</i>); Liang Li (<i>Missouri University of Science and Technology, Rolla, MO, USA</i>); Xu Gao (<i>Missouri University of Science and Technology, Rolla, MO, USA</i>); Jun Fan (<i>Missouri University of Science and Technology, Rolla, MO, USA</i>); Chulsoon Hwang (<i>Samsung Electronics, Suwon, South Korea</i>); Gyuyeong Cho (<i>Samsung Electronics, Suwon, South Korea</i>); Harkbyeong Park (<i>Samsung Electronics, Suwon, South Korea</i>)	

TC-4 Filters and Conducted Coupling I

Chair: Davy Pissort, KU Leuven, Ostend, Belgium

2:00 pm	Cross Coupling between Lightning Conductor and Signal Lines within Rotor Blades	355
	Matthias Hampe (<i>Ostfalia University of Applied Science, Wolfenbüttel, Germany</i>); Olaf Berndt (<i>WaveTec Engineering, Zinnowitz, Germany</i>); Michael Przybilla (<i>Deutsches Zentrum für Luft- und Raumfahrt, Braunschweig, Germany</i>); Birgit Wieland (<i>Deutsches Zentrum für Luft- und Raumfahrt, Braunschweig, Germany</i>)	
2:25 pm	Analysis of PIFA Antenna Coupling in Nearby Traces and Reduction with CSRRs in PCB at 2.45 GHz	361
	Ignacio Gil (<i>Universitat Politècnica de Catalunya, Terrassa, Spain</i>); Raúl Fernández-García (<i>Universitat Politècnica de Catalunya, Terrassa, Spain</i>)	

2:50 pm	Median Filters to Suppress Interference	366
	Bruno Audone (<i>EMC Consultant, Torino, Italy</i>); Michele Borsero (<i>INRIM, Torino, Italy</i>)	
3:15 pm	Simple and Cost-Effective Method for Improving the High Frequency Performance of Surface-Mount Shunt Capacitors Filters	372
	J. Bernal (<i>University of Seville, Seville, Spain</i>); M. Freire (<i>University of Seville, Seville, Spain</i>); S. Ramiro (<i>Skylife Engineering, La Rinconada, Sevilla, Spain</i>)	

TC-4 Filters and Conducted Coupling II

Chair: Davy Pissort, KU Leuven, Ostend, Belgium

4:00 pm	Mode Conversion and Transfer Characteristics of Conducted Disturbance to Ethernet Device from Power Supply Cable	378
	Tohlu Matsushima (<i>Kyoto University, Kyoto, Japan</i>); Osami Wada (<i>Kyoto University, Kyoto, Japan</i>); Kazuhiro Takaya (<i>NTT Network Technology Laboratories, Musashino, Japan</i>); Yuichiro Okugawa (<i>NTT Network Technology Laboratories, Musashino, Japan</i>)	
4:25 pm	Unexpected Poor Performance of Presumed High-Quality Power Line Filter, and How it Improved	382
	Niek Moonen (<i>University of Twente, Enschede, Netherlands</i>); Frits Buesink (<i>University of Twente, Enschede, Netherlands</i>); Frank Leferink (<i>University of Twente and Thales Nederland B.V., Enschede, and Hengelo, Netherlands</i>)	
4:50 pm	Sub-Miniature Common Mode Filter with Integrated ESD Protection	386
	Jens Werner (<i>Jade University of Applied Science, Wilhelmshaven, Germany</i>); Jennifer Schütt (<i>NXP Semiconductors Germany GmbH, Hamburg, Germany</i>); Guido Notermans (<i>NXP Semiconductors Germany GmbH, Hamburg, Germany</i>) <i>Best Paper Award Finalist</i>	
5:15 pm	Extremity Crosstalk Protection Analysis on Twisted Cables	391
	Charles Jullien (<i>Labinal Power Systems, Blagnac, France</i>); Jérôme Genoulaz (<i>Labinal Power Systems, Blagnac, France</i>); Michel Dunand (<i>Labinal Power Systems, Blagnac, France</i>)	

TC-2 Reverberation Testing I

Chair: John Dawson, University of York, York, United Kingdom

8:20 am	An Evaluation of the Independent Stirrer Positions in the Dresden Reverberation Chambers based on Field Homogeneity within a Defined Test Volume	396
	Stephan Pfennig (<i>Technical University Dresden, Dresden, Germany</i>) <i>Best Student Paper Award Finalist</i>	
8:45 am	Analysis of a Simultaneously Clockwise and Counterclockwise Rotated Mode Stirrer in a Reverberation Chamber	402
	M.E. Gruber (<i>Technische Universität München, Munich, Germany</i>); T.M. Dengler (<i>Technische Universität München, Munich, Germany</i>); A. Knaak (<i>Technische Universität München, Munich, Germany</i>); J. Knapp (<i>Technische Universität München, Munich, Germany</i>); T.F. Eibert (<i>Technische Universität München, Munich, Germany</i>)	

9:10 am	On Measurement of Reverberation Chamber Time Constant and Related Curve Fitting Techniques	406
	<i>Xiaotian Zhang (University of York, York, United Kingdom); Martin Robinson (University of York, York, United Kingdom); Ian Flintoft (University of York, York, United Kingdom)</i>	
9:35 am	Vectorial Channel Sounding in a Reverberation Chamber – Measuring Dynamic Behaviour	412
	<i>Georg Zimmer (University of Braunschweig, Braunschweig, Germany); Robert Geise (University of Braunschweig, Braunschweig, Germany); Björn Neubauer (University of Braunschweig, Braunschweig, Germany); Jens Schüür (University of Braunschweig, Braunschweig, Germany); Achim Enders (University of Braunschweig, Braunschweig, Germany)</i>	

TC-2 Reverberation Testing II

Chair: Martin Robinson, University of York, York, United Kingdom

10:20 am	Quantitative Evaluation for Radio-Frequency Effects of Electro-Explosive Device	417
	<i>Ye Juan (Beijing Institute of Radio Metrology and Measurement, Beijing, China); Li Guilan (Beijing Institute of Radio Metrology and Measurement, Beijing, China); Zhao Longfei (Beijing Institute of Radio Metrology and Measurement, Beijing, China)</i>	
10:45 am	Effect of Absorber Number and Positioning on the Power Delay Profile of a Reverberation Chamber	422
	<i>Luca Bastianelli (Università Politecnica delle Marche, Ancona, Italy); Luca Giacometti (Università Politecnica delle Marche, Ancona, Italy); Valter Mariani Primiani (Università Politecnica delle Marche, Ancona, Italy); Franco Moglie (Università Politecnica delle Marche, Ancona, Italy)</i>	
11:10 am	An EMC Study on the Interoperability of the European Railway Network	428
	<i>Eva Karadimou (York EMC Services, York, United Kingdom); Rob Armstrong (York EMC Services, York, United Kingdom); Inigo Adin (CEIT, Spain); Virginie Deniau (IFSTTAR, France); Joseba Rodriguez (CAF-ID, Spain); Diego Galar (Luleå University of Technology, Sweden); Stefan Niska (TRAFIKVERKET, Sweden); Jaime Tamarit (CEDEX, Spain)</i>	
11:35 am	Source Stirring Analysis in a Reverberation Chamber based on Modal Expansion of the Electric Field	434
	<i>Emmanuel Amador (EDF Lab, Moret sur Loing, France); Philippe Besnier (IETR-CNRS-INSa de Rennes, Rennes, France)</i>	

TC-2 Emission Measurements I

Chair: Ghery Pettit, Intel Corporation, DuPont, WA, USA

2:00 pm	Erroneous Practices in Measuring Discontinuous Disturbances	440
	<i>Mario Monti (Elettronica Monti, Ponte a Egola, Italy)</i>	
2:25 pm	Extension of the Emission Measurements for Alternative Test Methods above 1 GHz for Unintentional Electromagnetic Radiators	444
	<i>Benjamin Menssen (Leibniz Universität Hannover, Hannover, Germany); David Hamann (Leibniz Universität Hannover, Hannover, Germany); Heyno Garbe (Leibniz Universität Hannover, Hannover, Germany)</i> <i>Best Student Paper Award Finalist</i>	

2:50 pm	Localization of Cyclostationary EMI Sources based on Near-Field Measurements	450
	Anastasia Gorbunova (<i>Moscow Aviation Institute (National Research University), Moscow, Russia</i>); Andrey Baev (<i>Moscow Aviation Institute (National Research University), Moscow, Russia</i>); Maxim Konovalyuk (<i>Moscow Aviation Institute (National Research University), Moscow, Russia</i>); Yury Kuznetsov (<i>Moscow Aviation Institute (National Research University), Moscow, Russia</i>)	

3:15 pm	Radiated Transient Interferences Measurement Procedure to Evaluate Digital Communication Systems	456
	Marc Pous (<i>Universitat Politècnica de Catalunya, Barcelona, Spain</i>); Marco A. Azpúrua (<i>Universitat Politècnica de Catalunya, Barcelona, Spain</i>); Ferran Silva (<i>Universitat Politècnica de Catalunya, Barcelona, Spain</i>)	

TC-2 Emission Measurements II

Chair: Ghery Pettit, Intel Corporation, DuPont, WA, USA

4:00 pm	The Time-Domain Performance of the Van Veen Loop	462
	James McLean (<i>TDK R&D Corp., Cedar Park, TX, USA</i>); Robert Sutton (<i>TDK R&D Corp., Cedar Park, TX, USA</i>); Koji Takizawa (<i>TDK R&D Corp., Tokyo, Japan</i>); Akihiro Sato (<i>TDK R&D Corp., Tokyo, Japan</i>); Masataka Midori (<i>TDK R&D Corp., Tokyo, Japan</i>); Yuki Naito (<i>TDK R&D Corp., Tokyo, Japan</i>)	

4:25 pm	Atom-Based RF Electric Field Measurements: An Initial Investigation of the Measurement Uncertainties	467
	Christopher L. Holloway (<i>National Institute of Standards and Technology, Boulder, CO, USA</i>); Joshua A. Gordon (<i>National Institute of Standards and Technology, Boulder, CO, USA</i>); Matt T. Simons (<i>National Institute of Standards and Technology, Boulder, CO, USA</i>); Haoquan Fan (<i>University of Oklahoma, Norman, OK, USA</i>); Santosh Kumar (<i>University of Oklahoma, Norman, OK, USA</i>); James P. Shaffer (<i>University of Oklahoma, Norman, OK, USA</i>); David A. Anderson (<i>University of Michigan, Ann Arbor, MI, USA</i>); Andrew Schwarzkopf (<i>University of Michigan, Ann Arbor, MI, USA</i>); Stephanie A. Miller (<i>University of Michigan, Ann Arbor, MI, USA</i>); Nithiwadee Thaicharoen (<i>University of Michigan, Ann Arbor, MI, USA</i>); Georg Raithel (<i>University of Michigan, Ann Arbor, MI, USA</i>)	

4:50 pm	Experience on Proficiency Testing in Italy with Emphasis on Radiated Emission Measurements from 30 MHz to 1 GHz	473
	C. Carobbi (<i>University of Florence, Firenze, Italy</i>); A. Bonci (<i>University of Florence, Firenze, Italy</i>); M. Cati (<i>Powersoft S.p.A., Firenze, Italy</i>); C. Panconi (<i>Elettroingegneria, Pistoia, Italy</i>); M. Borsero (<i>INRIM, Torino, Italy</i>); G. Vizio (<i>INRIM, Torino, Italy</i>) <i>Best Paper Award Finalist</i>	

TC-9 Advanced Models and Time Domain Methods I

Chair: Frank Gronwald, Technische Universität Hamburg-Harburg, Hamburg, Germany

8:20 am	A Heuristic Model for the Transmission Cross Section of Wire-Mesh Covered Apertures	479
	Ronny Gunnarsson (<i>Saab Aeronautics, Linköping, Sweden</i>); Mats Bäckström (<i>Saab Aeronautics, Linköping, Sweden</i>)	

8:45 am	Validation of a Flexible Causality Treatment for Transient Analysis of Nonlinearly Loaded Structures	485
	Cheng Yang (<i>National University of Defense Technology and Technische Universität Hamburg Harburg, Changsha, and Hamburg, China and Germany</i>); Heinz-D. Brüns (<i>Technische Universität Hamburg Harburg, Hamburg, Germany</i>); Peiguo Liu (<i>National University of Defense Technology, Changsha, China</i>); Christian Schuster (<i>Technische Universität Hamburg-Harburg, Hamburg, Germany</i>)	

9:10 am	Capacity Extraction in Physical Equivalent Networks	491
	Jan Hansen (<i>Robert Bosch GmbH, Stuttgart, Germany</i>); Carsten Potratz (<i>Robert Bosch GmbH, Stuttgart, Germany</i>)	
9:35 am	Parametric Interpolation using Physics-Based Basis Functions	497
	M.A. Francavilla (<i>Istituto Superiore Mario Boella, Torino, Italy</i>); G. Giordanengo (<i>Istituto Superiore Mario Boella, Torino, Italy</i>); M. Righero (<i>Istituto Superiore Mario Boella, Torino, Italy</i>); G. Vecchi (<i>Politecnico di Torino, Torino, Italy</i>); F. Vipiana (<i>Politecnico di Torino, Torino, Italy</i>)	

TC-9 Advanced Models and Time Domain Methods II

Chair: Frank Gronwald, Technische Universität Hamburg-Harburg, Hamburg, Germany

10:20 am	FDTD Transient Analysis of Grounding Grids – A Comparison of Two Different Thin Wire Models	501
	L. Diaz (<i>Electricité de France, Moret Sur Loing, France</i>); C. Miry (<i>Electricité de France, Moret Sur Loing, France</i>); A. Reineix (<i>Institut de Recherche XLIM, Limoges, France</i>); C. Guiffaut (<i>Institut de Recherche XLIM, Limoges, France</i>); A. Tatematsu (<i>Central Research Institute of Electric Power Industry, Kanagawa, Japan</i>)	
10:45 am	A Stable Subgridding Finite Difference Time Domain Method on Multi-GPU Cluster	507
	Jan Ritter (<i>Airbus Defence and Space GmbH, Bremen, Germany</i>); Magnus Benjes (<i>Airbus Defence and Space GmbH, Bremen, Germany</i>); Martin Murso (<i>Airbus Defence and Space GmbH, Bremen, Germany</i>); Daniela Wulf (<i>Airbus Defence and Space GmbH, Bremen, Germany</i>); Sebastian Lange (<i>Bundeswehr Research Institute for Protective Technologies and NBC Protection, Munster, Germany</i>)	
11:10 am	Reduced-Order Models of VFETD/FDTD Algorithms for Optimized Nanomaterial EMC Applications	N/A
	N.V. Kantartzis (<i>Aristotle University of Thessaloniki, Thessaloniki, Greece</i>); T.T. Zygidis (<i>University of Western Macedonia, Kozani, Greece</i>); C.S. Antonopoulos (<i>Aristotle University of Thessaloniki, Thessaloniki, Greece</i>); T.D. Tsiboukis (<i>Aristotle University of Thessaloniki, Thessaloniki, Greece</i>)	
11:35 am	Method for Determining Region Boundaries for Transient Data Comparison using Feature Selective Validation (FSV)	518
	Gang Zhang (<i>Harbin Institute of Technology, Harbin, China</i>); Lixin Wang (<i>Harbin Institute of Technology, Harbin, China</i>); Xiyuan Peng (<i>Harbin Institute of Technology, Harbin, China</i>); Jinjun Bai (<i>Harbin Institute of Technology, Harbin, China</i>); Alistair Duffy (<i>De Montfort University, Leicester, United Kingdom</i>)	

TC-9 Modelling Applications, Including Reverberation Chambers I

Chair: Vignesh Rajamani, Oklahoma State University, Stillwater, OK, USA

2:00 pm	Efficient Full-Wave Modeling of Radiative Near-Field Interactions in Semi-Anechoic Conditions	524
	Gert-Jan Stockman (<i>Ghent University, Ghent, Belgium</i>); Hendrik Rogier (<i>Ghent University, Ghent, Belgium</i>); Dries Vande Ginste (<i>Ghent University, Ghent, Belgium</i>)	
2:25 pm	Fast and Efficient Near-Field to Near-Field and Near-Field to Far-Field Transformation based on the Spherical Wave Expansion	529
	B. Boesman (<i>KU Leuven, Ostend, Belgium</i>); D. Pissort (<i>KU Leuven, Ostend, Belgium</i>); G. Gielen (<i>KU Leuven, Leuven, Belgium</i>); G.A.E. Vandenbosch (<i>KU Leuven, Leuven, Belgium</i>)	

2:50 pm **Finite Element Simulation of the Frequency-Dependent Polarization of Biological Cells** 535
 Sebastian Böhmelt (*Helmut Schmidt University, Hamburg, Germany*); Fabian Scharf (*Helmut Schmidt University, Hamburg, Germany*); Michael Dudzinski (*Helmut Schmidt University, Hamburg, Germany*); Marco Rozgic (*Helmut Schmidt University, Hamburg, Germany*); Lars-Ole Fichte (*Helmut Schmidt University, Hamburg, Germany*); Marcus Stierner (*Helmut Schmidt University, Hamburg, Germany*)

3:15 pm **Specific Absorption Rate (SAR) Evaluation of Human Body Model in the Presence of Radar Wave Radiation on a Warship Deck** 541
 Yang Guo (*Zhejiang University, Hangzhou, China*); Jian Wang (*Ningbo University, Ningbo, China*); Hong-Ke Ma (*Institute of Applied Electronics, Mianyang, China*); Lian-Dong Wang (*State Key Lab of Complex Electromagnetic Environment Effects on Electronics and Information System (CEMEE), Luoyang, China*); Wen-Yan Yin (*Zhejiang University, Shanghai, China*)

TC-9 Modelling Applications, Including Reverberation Chambers II

Chair: Vignesh Rajamani, Oklahoma State University, Stillwater, OK, USA

4:00 pm **Experimental Validation of the Statistical Energy Analysis for Coupled Reverberant Rooms** 546
 Louis Kovalevsky (*University of Cambridge, Cambridge, United Kingdom*); Robin S. Langley (*University of Cambridge, Cambridge, United Kingdom*); Philippe Besnier (*IETR-CNRS-INSA de Rennes, Rennes, France*); Jérôme Sol (*IETR-CNRS-INSA de Rennes, Rennes, France*)

4:25 pm **Simulation based Analysis of Field Correlation and Ergodicity of a Reverberation Chamber** 552
 David Sánchez (*Helmut Schmidt University, Hamburg, Germany*); Michael Dudzinski (*Helmut Schmidt University, Hamburg, Germany*); Marco Rozgic (*Helmut Schmidt University, Hamburg, Germany*); Sebastian Böhmelt (*Helmut Schmidt University, Hamburg, Germany*); Lars-Ole Fichte (*Helmut Schmidt University, Hamburg, Germany*); Marcus Stierner (*Helmut Schmidt University, Hamburg, Germany*); Julia Schiffner (*Heinrich Heine University, Düsseldorf, Germany*)

4:50 pm **Uncorrelated Frequency Steps in a Reverberation Chamber: A Multivariate Approach** 558
 Gabriele Gradoni (*University of Nottingham, Nottingham, United Kingdom*); Luca Bastianelli (*Università Politecnica delle Marche, Ancona, Italy*); Valter Mariani Primiani (*Università Politecnica delle Marche, Ancona, Italy*); Franco Moglie (*Università Politecnica delle Marche, Ancona, Italy*)

5:15 pm **A Cavity Green's Function Boundary Element Method for the Modeling of Reverberation Chambers: Validation Against Measurements** 563
 Michael E. Gruber (*Technische Universität München, Munich, Germany*); Thomas F. Eibert (*Technische Universität München, Munich, Germany*)

TC-10 Signal and Power Integrity I

Chair: Giulio Antonini, Università degli Studi dell'Aquila, L'Aquila, Italy

8:20 am **Through Silicon via Time Domain Crosstalk Modeling Considering Hysteretic Coupling Capacitance** 567
 S. Piersanti (*University of L'Aquila, L'Aquila, Italy*); F. de Paulis (*University of L'Aquila, L'Aquila, Italy*); A. Orlandi (*University of L'Aquila, L'Aquila, Italy*); Dong-Hyun Kim (*KAIST, Daejeon, South Korea*); Jonghyun Cho (*KAIST, Daejeon, South Korea*); Joungho Kim (*KAIST, Daejeon, South Korea*)

8:45 am	Modelling of Planar EBG Structure by using Equivalent Circuit Method	573
	Guang-xiao Luo (<i>North China Power Engineering University, Beijing, China</i>); Er-Ping Li (<i>Zhejiang University, Hangzhou, China</i>); Xing-chang Wei (<i>Zhejiang University, Hangzhou, China</i>); Cui Xiang (<i>North China Power Engineering University, Beijing, China</i>)	
9:10 am	Predictive Method for Efficient Transmission Lines and Multilayered Power/Ground Planes Co-Modeling using Multi-Conductor Transmission Lines	577
	Afef Bouchaala (<i>STMicroelectronics, and IETR, Crolles, and Grenoble, France</i>); Lionel Courau (<i>STMicroelectronics, Crolles, France</i>); Philippe Galy (<i>STMicroelectronics, Crolles, France</i>); Olivier Bonnaud (<i>IETR, Rennes, France</i>)	
9:35 am	Development of Electromagnetic Analytical Models for Substrate Noise Propagation in Integrated Circuits	582
	Merce Grau Novellas (<i>Eindhoven University of Technology, Eindhoven, Netherlands</i>); Ramiro Serra (<i>Eindhoven University of Technology, Eindhoven, Netherlands</i>); Matthias Rose (<i>NXP Semiconductors, Eindhoven, Netherlands</i>)	

TC-10 Signal and Power Integrity II

Chair: Giulio Antonini, Università degli Studi dell'Aquila, L'Aquila, Italy

10:20 am	Conformal Equivalent Circuit Model and Leapfrog Alternating Direction Implicit Formulation for Fast Simulation of Power Delivery Network	588
	Tadatoshi Sekine (<i>Shizuoka University, Hamamatsu-shi, Japan</i>); Hideki Asai (<i>Shizuoka University, Hamamatsu-shi, Japan</i>) <i>Best Paper Award Finalist</i>	
10:45 am	Effective Current Distribution Analysis Method for Multiconductor-Transmission-Line (MTL) System with Arbitrary Conductor Number Variation	594
	Chi-Hsuan Cheng (<i>National Taiwan University, Taipei, Taiwan</i>); Tzong-Lin Wu (<i>National Taiwan University, Taipei, Taiwan</i>)	
11:10 am	Broadband Equivalent-Circuit Model for Non-Uniform Transmission Lines	600
	Andreas Mantzke (<i>Otto-von-Guericke University, Magdeburg, Germany</i>); Sebastian Südekum (<i>Otto-von-Guericke University, Magdeburg, Germany</i>); Marco Leone (<i>Otto-von-Guericke University, Magdeburg, Germany</i>) <i>Best Paper Award Finalist</i>	
11:35 am	A Novel Semi-Analytical Solution of Impedance of Grid-Type Power Distribution Network	606
	Han-Qin Ye (<i>Zhejiang University, Hangzhou, China</i>); Xing-Chang Wei (<i>Zhejiang University, Hangzhou, China</i>); Er-Ping Li (<i>Zhejiang University, Hangzhou, China</i>)	

TC-10 Signal and Power Integrity III

Chair: Christian Schuster, Technische Universität Hamburg-Harburg, Hamburg, Germany

2:00 pm	Using Rectangular-Patches (RPs) to Reduce Far-End Crosstalk Noise and Improve Eye-Diagrams on Microstrip Helix Delay Line	612
	Ding-Bing Lin (<i>National Taipei University of Technology, Taipei, Taiwan</i>); Chung-Pin Huang (<i>National Taipei University of Technology, Taipei, Taiwan</i>); Chih-Hao Lin (<i>National Taipei University of Technology, Taipei, Taiwan</i>); Hsin-Nan Ke (<i>PEGATRON Corporation, Taipei, Taiwan</i>); Wen-Sheng Liu (<i>WIESON Technologies Co., Ltd., New Taipei, Taiwan</i>)	

2:25 pm	Generic Prediction of Crosstalk between Shielded Wires	616
	J.H.G.J. Lansink Rotgerink (<i>National Aerospace Laboratory, Marknesse, Netherlands</i>); H. Schippers (<i>National Aerospace Laboratory, Marknesse, Netherlands</i>)	
2:50 pm	Mitigating the Threat of Crosstalk and Unwanted Radiation when using Electromagnetic Bandgap Structures to Suppress Common Mode Signal Propagation in PCB Differential Interconnects	622
	Christopher Kodama (<i>Rose-Hulman Institute of Technology, Terre Haute, IN, USA</i>); Christopher O'Daniel (<i>Rose-Hulman Institute of Technology, Terre Haute, IN, USA</i>); Joshua Cook (<i>Rose-Hulman Institute of Technology, Terre Haute, IN, USA</i>); Francesco de Paulis (<i>University of L'Aquila, L'Aquila, Italy</i>); Michael Cracraft (<i>IBM Corporation, Poughkeepsie, NY, USA</i>); Samuel Connor (<i>IBM Corporation, Research Triangle Park, North Carolina, USA</i>); Antonio Orlandi (<i>University of L'Aquila, L'Aquila, Italy</i>); Edward Wheeler (<i>Rose-Hulman Institute of Technology, Terre Haute, IN, USA</i>)	
3:15 pm	Coupling Study in Smart Power Mixed ICs with a dedicated On-Chip Sensor	628
	V. Tomasevic (<i>CNRS LAAS, Toulouse, France</i>); A. Boyer (<i>CNRS LAAS, Toulouse, France</i>); S. Bendhia (<i>CNRS LAAS, Toulouse, France</i>); A. Steinmair (<i>ams AG, Oberpremstätten, Austria</i>); B. Weiss (<i>ams AG, Oberpremstätten, Austria</i>); E. Seebacher (<i>ams AG, Oberpremstätten, Austria</i>); P. Rust (<i>ams AG, Oberpremstätten, Austria</i>)	

TC-10 Signal and Power Integrity IV

Chair: Christian Schuster, Technische Universität Hamburg-Harburg, Hamburg, Germany

4:00 pm	Measurement of High-Frequency Conductivity Affected by Conductor Surface Roughness using Dielectric Rod Resonator Method	634
	Toshiki Iwai (<i>Fujitsu Laboratories Ltd., Atsugi, Japan</i>); Diasuke Mizutani (<i>Fujitsu Laboratories Ltd., Atsugi, Japan</i>); Motoaki Tani (<i>Fujitsu Laboratories Ltd., Atsugi, Japan</i>)	
4:25 pm	A Study of Intensify the Power of Verification for Memory Worst Case Conditions through the SI Analysis	640
	Chang-Ik Lee (<i>Hyundai Mobis, Yongin-Si, South Korea</i>); Mi-Ro Kim (<i>Hyundai Mobis, Yongin-Si, South Korea</i>)	
4:50 pm	Cost Competitive PI-SI Co-Design for DDR Interfaces	645
	Kinger Xingjian Cai (<i>Intel Corporation, Santa Clara, CA, USA</i>); Steven Yun Ji (<i>Intel Corporation, Santa Clara, CA, USA</i>)	
5:15 pm	A Broadband Directional Coupler for the Signal Integrity Analysis on Automotive High Speed Differential Data Links	650
	Stephan Schreiner (<i>Rosenberger Hochfrequenztechnik GmbH & Co. KG, Fridolfing, Germany</i>); Gunnar Armbrrecht (<i>Rosenberger Hochfrequenztechnik GmbH & Co. KG, Fridolfing, Germany</i>); Stephan Kunz (<i>Rosenberger Hochfrequenztechnik GmbH & Co. KG, Fridolfing, Germany</i>); Thomas Schmid (<i>Rosenberger Hochfrequenztechnik GmbH & Co. KG, Fridolfing, Germany</i>); Michael Wollitzer (<i>Rosenberger Hochfrequenztechnik GmbH & Co. KG, Fridolfing, Germany</i>)	

Auto Hybrid and Electrical Vehicles

Chair: Matthias Richter, Westsächsische Hochschule, Zwickau, Germany

Co-Chair: Mark Steffka, General Motors, Milford, MI, USA

- 8:20 am **A Characterization of EM Coupling in a Fully Electric 4-Wheel Drive Vehicle** 656
M. Iglesias (*ITAINNOVA, Zaragoza, Spain*); I. Echeverria (*ITAINNOVA, Zaragoza, Spain*);
F. Arteche (*ITAINNOVA, Zaragoza, Spain*); J. Piedrafita (*ITAINNOVA, Zaragoza, Spain*);
A. Pradas (*ITAINNOVA, Zaragoza, Spain*); F.J. Arcega (*Universidad de Zaragoza, Zaragoza, Spain*);
J. De Smet (*Flanders' DRIVE, Lommel, Belgium*)
- 8:45 am **The Effect of Fully Electric Vehicles on the Low Frequency Electromagnetic Environment** 662
R. Armstrong (*Univ. of York, York, United Kingdom*); L. Dawson (*Univ. of York, York, United Kingdom*); A.J. Rowell (*Univ. of York, York, United Kingdom*); C.A. Marshman (*Univ. of York, York, United Kingdom*); A.R. Ruddle (*MIRA Limited, Nuneaton, United Kingdom*)
- 9:10 am **Testing of High Voltage Systems Installed in Hybrid and Electric Vehicles** 668
Uwe Reinhardt (*Mooser EMC Technik GmbH, Ludwigsburg, Germany*); Jakob Mooser (*Mooser EMC Technik GmbH, Ludwigsburg, Germany*); Tim Artz (*Mooser EMC Technik GmbH, Ludwigsburg, Germany*)
- 9:35 am **Automotive Industry's EMC Requirements for Voltage Ripple in the High-Voltage System of Electrical Vehicles** 673
Benjamin Willmann (*Volkswagen AG, Wolfsburg, Germany*); Thomas Rinkleff (*Volkswagen AG, Wolfsburg, Germany*); Martin Obholz (*Volkswagen AG, Wolfsburg, Germany*); Ralf Vick (*Otto-von-Guericke-University, Magdeburg, Germany*)

Auto Electrical Powertrain

Chair: Matthias Richter, Westsächsische Hochschule, Zwickau, Germany

Co-Chair: Mark Steffka, General Motors, Milford, MI, USA

- 10:20 am **Transient Simulation of the Low-Frequency and High-Frequency Behavior of Asynchronous Machines in SPICE** 679
Martin Krüger (*Otto-von-Guericke-University, Magdeburg, Germany*); Mathias Magdowski (*Otto-von-Guericke-University, Magdeburg, Germany*); Ralf Vick (*Otto-von-Guericke-University, Magdeburg, Germany*); Thomas Schallschmidt (*Otto-von-Guericke-University, Magdeburg, Germany*); Thomas Rinkleff (*Volkswagen AG, Wolfsburg, Germany*)
- 10:45 am **Understanding Conducted Emissions from an Automotive Inverter using Common-Mode Model** 685
P. Hillenbrand (*University of Stuttgart, Stuttgart, Germany*); S. Tenbohlen (*University of Stuttgart, Stuttgart, Germany*); C. Keller (*Robert Bosch GmbH, Renningen, Germany*); K. Spanos (*Robert Bosch GmbH, Renningen, Germany*)
- 11:10 am **Inverter Modeling Including Non-Ideal IGBT Characteristics in Hybrid Electric Vehicle for Accurate EMI Noise Prediction** 691
Hyunwoo Shim (*KAIST, Daejeon, South Korea*); Hongseok Kim (*KAIST, Daejeon, South Korea*); Younghwan Kwack (*KAIST, Daejeon, South Korea*); Minkang Moon (*KAIST, Daejeon, South Korea*); Hyunsuk Lee (*KAIST, Daejeon, South Korea*); Jinwook Song (*KAIST, Daejeon, South Korea*); Joungho Kim (*KAIST, Daejeon, South Korea*); Beomshik Kim (*Hyundai Kia Motors, Hwaseong, South Korea*); Eulyong Kim (*Hyundai Kia Motors, Hwaseong, South Korea*)

11:35 am	Investigations on the Shaft Currents of an Electric Vehicle Traction System in Dynamic Operation	696
	S. Jeschke (<i>University Duisburg-Essen, Duisburg, Germany</i>); S. Tsiapenko (<i>University Duisburg-Essen, Duisburg, Germany</i>); H. Hirsch (<i>University Duisburg-Essen, Duisburg, Germany</i>)	

Auto Electrical Power Supply

Chair: Matthias Richter, Westsächsische Hochschule, Zwickau, Germany

Co-Chair: Mark Steffka, General Motors, Milford, MI, USA

2:00 pm	Feasibility of Estimating In-Service Vehicle Occupant Exposure to Electrical Powertrain Magnetic Fields using Non-Local Magnetic Field Measurements	702
	Alastair R. Ruddle (<i>MIRA Limited, Nuneaton, United Kingdom</i>); Lester Low (<i>MIRA Limited, Nuneaton, United Kingdom</i>)	

2:25 pm	Latest Development of the National and International EMC-Standards for Electric Vehicles and their Charging Infrastructure	708
	Holger Hirsch (<i>University of Duisburg-Essen, Duisburg, Germany</i>); Sebastian Jeschke (<i>University of Duisburg-Essen, Duisburg, Germany</i>); Luping Wei (<i>University of Duisburg-Essen, Duisburg, Germany</i>); Mike Trautmann (<i>University of Duisburg-Essen, Duisburg, Germany</i>); Jörg Bärenfänger (<i>EMC Test NRW GmbH, Dortmund, Germany</i>); Marc Maarleveld (<i>EMC Test NRW GmbH, Dortmund, Germany</i>); Johann Heyen (<i>Volkswagen AG, Wolfsburg, Germany</i>); Ahmed Darrat (<i>Volkswagen AG, Wolfsburg, Germany</i>)	

2:50 pm	High Frequency Impedance of Li-ion Batteries	714
	T. Doersam (<i>Daimler AG, Böblingen, Germany</i>); S. Schoerle (<i>Daimler AG, Böblingen, Germany</i>); C. Spieker (<i>University Kassel, Kassel, Germany</i>); T. Waldmann (<i>University Kassel, Kassel, Germany</i>); E. Hoene (<i>Fraunhofer IZM, Berlin, Germany</i>); K.-D. Lang (<i>Fraunhofer IZM, Berlin, Germany</i>)	

3:15 pm	Optimum Coil Configuration of Wireless Power Transfer System in Presence of Shields	720
	Silvano Cruciani (<i>University of L'Aquila, L'Aquila, Italy</i>); Tommaso Campi (<i>University of L'Aquila, L'Aquila, Italy</i>); Mauro Feliziani (<i>University of L'Aquila, L'Aquila, Italy</i>); Francesca Maradei (<i>Sapienza University of Rome, Rome, Italy</i>)	

Auto Analysis Automotive Systems

Chair: Matthias Richter, Westsächsische Hochschule, Zwickau, Germany

Co-Chair: Mark Steffka, General Motors, Milford, MI, USA

4:00 pm	Influence of Car Body Materials on the Common-Mode Current and Radiated Emissions Induced by Automotive Shielded Cables	726
	Morgan Vincent (<i>PSA Peugeot Citroën and IRSEEM/ESIGELEC, Vélizy-Villacoublay and Saint-Etienne du Rouvray, France</i>); Marco Klingler (<i>PSA Peugeot Citroën, Vélizy-Villacoublay, France</i>); Zouheir Riah (<i>IRSEEM/ESIGELEC, Saint-Etienne du Rouvray, France</i>); Yacine Azzouz (<i>IRSEEM/ESIGELEC, Saint-Etienne du Rouvray, France</i>)	

4:25 pm	Device for Adjusting Electromagnetic Losses Inside a Reverberation Chamber - Application to Automotive Wireless Environment Simulations	732
	A. Bel Hadj Mabrouk (<i>PSA Peugeot Citroën and IRSEEM-ESIGELEC, Vélizy-Villacoublay, and Saint Etienne du Rouvray, France</i>); M. Klingler (<i>PSA Peugeot Citroën, Vélizy-Villacoublay, France</i>); H. Boulzazen (<i>IRSEEM/ESIGELEC, Saint Etienne du Rouvray, France</i>); M. Heddebaut (<i>IFSTTAR, Villeneuve d'Ascq, France</i>)	

4:50 pm	Analysis of the Direct Radiation of EC Motors up to 10 MHz	738
	Uwe Neibig (<i>Robert Bosch GmbH, Stuttgart, Germany</i>)	
5:15 pm	Immunity of Modulation Schemes in Automotive Low Bitrate Power Line Communication Systems	743
	Alexander Zeichner (<i>TU Dortmund University, Dortmund, Germany</i>); Seyyed Ali Hassanpour Razavi (<i>TU Dortmund University, Dortmund, Germany</i>); Stephan Frei (<i>TU Dortmund University, Dortmund, Germany</i>)	
	<i>Best Student Paper Award Finalist</i>	

THURSDAY, AUGUST 20, 2015

Thursday, August 20, 2015

TC-4 Field - Wire Coupling and Radiation I

Chair: Franco Fiori, Politecnico di Torino, Torino, Italy

8:20 am	Susceptibility to EMI of a Battery Management System IC for Electric Vehicles	749
	Orazio Aiello (<i>NXP Semiconductor, Nijmegen, Netherlands</i>); Paolo S. Croveti (<i>Politecnico di Torino, Torino, Italy</i>); Franco Fiori (<i>Politecnico di Torino, Torino, Italy</i>)	
8:45 am	Influence of Parasitic Elements on Radiated Emissions of a Boost Converter	755
	Lars Middelstaedt (<i>Otto-von-Guericke-University, Magdeburg, Germany</i>); Andreas Lindemann (<i>Otto-von-Guericke-University, Magdeburg, Germany</i>); Moawia Al-Hamid (<i>Otto-von-Guericke-University, Magdeburg, Germany</i>); Ralf Vick (<i>Otto-von-Guericke-University, Magdeburg, Germany</i>)	
	<i>Best Student Paper Award Finalist</i>	
9:10 am	Equivalent Circuit Model of Frequency-Domain Responses with External Field	761
	Bing Li (<i>Beihang University, Beijing, China</i>); Junjun Wang (<i>Beihang University, Beijing, China</i>); Xinwei Song (<i>Beihang University, Beijing, China</i>); Donglin Su (<i>Beihang University, Beijing, China</i>)	
9:35 am	Experimental Plane Wave and Random Field Coupling to Uniform and Non-Uniform Transmission Lines	767
	Robert Vogt-Ardatjew (<i>University of Twente, Enschede, Netherlands</i>); Frank Leferink (<i>Thales Nederland B.V. and University of Twente, Hengelo, and Enschede, Netherlands</i>)	

TC-4 Field - Wire Coupling and Radiation II

Chair: Franco Fiori, Politecnico di Torino, Torino, Italy

10:20 am	Study on the Reduction of Heatsink Radiation by Combining Grounding Pins and Absorbing Materials	773
	Yoei Arien (<i>Laird Technologies, Geel, Belgium</i>); Paul Dixon (<i>Laird Technologies, Randolph, MA, USA</i>); Mohammad Ali Khorrami (<i>Laird Technologies, Randolph, MA, USA</i>); Andy Degraeve (<i>KU Leuven, Ostend, Belgium</i>); Davy Pisssoort (<i>KU Leuven, Ostend, Belgium</i>)	

10:45 am	Layout Modelling to Predict Compliance with EMC Standards of Power Electronic Converters	779
	Anne-Sophie Podlejski (<i>Université de Lyon, Ecully, France</i>); Arnaud Bréard (<i>Université de Lyon, Ecully, France</i>); Cyril Buttay (<i>Université de Lyon, Ecully, France</i>); Eliana Rondon-Pinilla (<i>Université de Lyon, Ecully, France</i>); Florent Morel (<i>Université de Lyon, Ecully, France</i>); Christian Vollaire (<i>Université de Lyon, Ecully, France</i>)	
11:10 am	Field Coupling to Nonlinear Circuits in Resonating Structures	785
	Thomas Wolfgramm (<i>Dresden University of Technology, Dresden, Germany</i>); André Manicke (<i>Dresden University of Technology, Dresden, Germany</i>); Hans Georg Krauthäuser (<i>Technical University Dresden, Dresden, Germany</i>)	
11:35 am	Radiation of Input Decoupling Network Typically used in Switching DC-DC Converters	791
	Raul Blečić (<i>University of Zagreb and KU Leuven, Zagreb, and Leuven, Croatia and Belgium</i>); Renaud Gillon (<i>ON Semiconductor, Oudenaarde, Belgium</i>); Bart Nauwelaers (<i>KU Leuven, Leuven, Belgium</i>); Adrijan Baric (<i>University of Zagreb, Zagreb, Croatia</i>)	

SS-4 EM Field Interaction with Transmission Lines I

Chair: Jürgen Nitsch, Otto-von-Guericke University, Magdeburg, Germany

2:00 pm	On the Validity Limits of the Transmission Line Theory in Evaluating Differential-Mode Signals along a Two-Wire Line above a Ground Plane	797
	N. Mora (<i>EPFL, Lausanne, Switzerland</i>); G. Lugrin (<i>EPFL, Lausanne, Switzerland</i>); F. Rachidi (<i>EPFL, Lausanne, Switzerland</i>); I. Junqua (<i>ONERA – The French Aerospace Lab, Toulouse, France</i>); J.P. Parmantier (<i>ONERA – The French Aerospace Lab, Toulouse, France</i>); S. Tkachenko (<i>Otto-von-Guericke University, Magdeburg, Germany</i>); M. Rubinstein (<i>University of Applied Sciences Western Switzerland, Yverdon, Switzerland</i>); M. Nyffeler (<i>Federal Department of Defence-Armasuisse, Thun, Switzerland</i>); P. Bertholet (<i>Federal Department of Defence-Armasuisse, Thun, Switzerland</i>)	
2:25 pm	Network Analysis of Full Wave Multi-conductor Transmission Lines	801
	Fabian Ossevorth (<i>Technical University Dresden, Dresden, Germany</i>); Hans Georg Krauthäuser (<i>Technical University Dresden, Dresden, Germany</i>); Jürgen Nitsch (<i>Otto-von-Guericke University, Magdeburg, Germany</i>)	
2:50 pm	Application of Generalized Reflection and Transmission Coefficients to Inhomogeneous Conductors at High Frequencies	806
	Ronald Rambousky (<i>Bundeswehr Research Institute for Protective Technologies and NBC-Protection, Munster, Germany</i>); Jürgen Nitsch (<i>Otto-von-Guericke University, Magdeburg, Germany</i>); Sergey Tkachenko (<i>Otto-von-Guericke University, Magdeburg, Germany</i>)	
3:15 pm	Analytic Approximation of Natural Frequencies of Bent Wire Structures above Ground	812
	Felix Middelstaedt (<i>Technical University, Darmstadt, Germany</i>); Sergey Tkachenko (<i>Otto-von-Guericke University, Magdeburg, Germany</i>); Ralf Vick (<i>Otto-von-Guericke-University, Magdeburg, Germany</i>); Ronald Rambousky (<i>Bundeswehr Research Institute for Protective Technologies, Munster, Germany</i>)	

SS-4 EM Field Interaction with Transmission Lines II

Chair: Jürgen Nitsch, Otto-von-Guericke University, Magdeburg, Germany

- 4:00 pm **Numerical Simulation of the Stochastic Electromagnetic Field Coupling to Transmission Line Networks** 818
Mathias Magdowski (*Otto-von-Guericke-University, Magdeburg, Germany*);
Ralf Vick (*Otto-von-Guericke-University, Magdeburg, Germany*)
- 4:25 pm **Statistical Properties of Low Frequency Voltages Induced by a Plane-Wave Field Across the Terminal Loads of a Random Wire-Bundle** 824
Giordano Spadacini (*Politecnico di Milano, Milan, Italy*); Flavia Grassi (*Politecnico di Milano, Milan, Italy*); Sergio A. Pignari (*Politecnico di Milano, Milan, Italy*)
- 4:50 pm **On the Derivation of Generalized Transmission Line Equations of Cylindrical Waveguides with Irregular Deformed Surfaces** 830
Wolfgang Mathis (*Leibniz Universität Hannover, Hannover, Germany*);
Richard Mathis (*Universität Göttingen, Göttingen, Germany*)
- 5:15 pm **AutoCAD Application for LPS, Grounding and EMC Problems** 834
D.S. Shishigin (*Vologda State University, Vologda, Russia*); S.L. Shishigin (*Vologda State University, Vologda, Russia*); N.V. Korovkin (*Saint-Petersburg State Polytechnical University, St.-Petersburg, Russia*)

TC-2 Immunity Measurements I

Chair: Don Heirman, Don HEIRMAN Consultants, Lincroft, NJ, USA

- 8:20 am **An Experimental Study of Electrostatic Discharge Immunity Testing for Wearable Devices** 839
Takeshi Ishida (*Noise Laboratory Co., LTD, Sagamihara, Japan*); Shuichi Nitta (*Noise Laboratory Co., LTD, Sagamihara, Japan*); Fengchao Xiao (*University of Electro-Communications, Tokyo, Japan*); Yoshio Kami (*University of Electro-Communications, Tokyo, Japan*); Osamu Fujiwara (*University of Electro-Communications, Tokyo, Japan*)
Best Paper Award Finalist
- 8:45 am **Time-Domain Response of Bulk Current Injection Probes to Impulsive Stress Waveforms** 843
Flavia Grassi (*Politecnico di Milano, Milan, Italy*); Giordano Spadacini (*Politecnico di Milano, Milan, Italy*); Sergio A. Pignari (*Politecnico di Milano, Milan, Italy*)
- 9:10 am **Design and Fabrication of Miniature Parallel Strip Line in PCB Technology for Immunity Testing** 849
Umberto Paoletti (*Hitachi, Ltd., Yokohama, Japan*); Tatsuji Noma (*Hitachi, Ltd., Yokohama, Japan*); Nobumasa Nishiyama (*HGST Japan Ltd., Fujisawa, Japan*)

TC-2 Immunity Measurements II

Chair: Don Heirman, Don HEIRMAN Consultants, Lincroft, NJ, USA

- 10:20 am **A New Conducted Immunity Test Device for Inter-Laboratory Comparisons** 855
Emrah Tas (*Swiss Federal Institute of Metrology, Bern, Switzerland*); Frédéric Pythoud (*Swiss Federal Institute of Metrology, Bern, Switzerland*)

10:45 am	Stripline Injection Cell for High Frequency BCI Tests	861
	Guillaume Andrieu (<i>University of Limoges, Limoges, France</i>); Alain Reineix (<i>University of Limoges, Limoges, France</i>)	
11:10 am	On the Validity and Statistical Significance of HEMP Test Standards	865
	Lars Ole Fichte (<i>Helmut Schmidt University, Hamburg, Germany</i>); Sven Knoth (<i>Helmut Schmidt University, Hamburg, Germany</i>); Stefan Potthast (<i>Bundeswehr Research Institute for Protective Technologies and NBC Protection, Munster, Germany</i>); Frank Sabath (<i>Bundeswehr Research Institute for Protective Technologies and NBC Protection, Munster, Germany</i>); Marcus Stierner (<i>Helmut Schmidt University, Hamburg, Germany</i>)	

TC-2 Antennas

Chair: Andrew Marvin, York EMC Services, York, United Kingdom

2:00 pm	Antenna Factor Determination of a Shielded Standard Loop Antenna	871
	N. Richter (<i>European Space Agency - ESTEC, Noordwijk, Netherlands</i>); A. Junge (<i>European Space Agency - ESTEC, Noordwijk, Netherlands</i>); A. Küllmer (<i>Technische Universität Braunschweig, Braunschweig, Germany</i>); A. Enders (<i>Technische Universität Braunschweig, Braunschweig, Germany</i>) <i>Best Student Paper Award Finalist</i>	
2:25 pm	Contactless Calibration of Loop Antennas in Comparison to Traditional Methods	876
	A. Küllmer (<i>Technische Universität Braunschweig, Braunschweig, Germany</i>); N. Richter (<i>Technische Universität Braunschweig, Braunschweig, Germany</i>); M. Lahme (<i>Technische Universität Braunschweig, Braunschweig, Germany</i>); A. Enders (<i>Technische Universität Braunschweig, Braunschweig, Germany</i>); A. Junge (<i>European Space Agency - ESTEC, Noordwijk, Netherlands</i>)	
2:50 pm	A Detailed Study on TEM Waveguides' Field Distribution and Efficiency	881
	D. Hamann (<i>Leibniz Universität Hannover, Hannover, Germany</i>); H. Garbe (<i>Leibniz Universität Hannover, Hannover, Germany</i>); T. Pusch (<i>Fraunhofer INT, Euskirchen, Germany</i>); M. Suhrke (<i>Fraunhofer INT, Euskirchen, Germany</i>)	

TC-2 Measurement Analysis

Chair: Jan Luiken ter Haseborg, Hamburg University of Technology, Hamburg, Germany

4:00 pm	Prediction of Magnetic Field Radiation using Equivalent Current Distribution	887
	Y.L. Diao (<i>City University of Hong Kong, Hong Kong, Hong Kong</i>); W.N. Sun (<i>City University of Hong Kong, Hong Kong, Hong Kong</i>); S.W. Leung (<i>City University of Hong Kong, Hong Kong, Hong Kong</i>); Y.M. Siu (<i>City University of Hong Kong, Hong Kong, Hong Kong</i>); K.H. Chan (<i>Hong Kong Productivity Council, Hong Kong, Hong Kong</i>)	
4:25 pm	EMI-Receiver Simulation Model with Quasi-Peak Detector	891
	Timuçin Karaca (<i>Graz University of Technology, Graz, Austria</i>); Bernd Deutschmann (<i>Graz University of Technology, Graz, Austria</i>); Gunter Winkler (<i>Graz University of Technology, Graz, Austria</i>)	
4:50 pm	Estimation of Absorber Performance using Reverberation Techniques and Artificial Neural Network Models	897
	Corey Vyhlidal (<i>Oklahoma State University, Stillwater, OK, USA</i>); Vignesh Rajamani (<i>Oklahoma State University, Stillwater, OK, USA</i>); Chuck F. Bunting (<i>Oklahoma State University, Stillwater, OK, USA</i>); Praveen Damacharla (<i>University of Toledo, Toledo, OH, USA</i>); Vijay Devabakhtuni (<i>University of Toledo, Toledo, OH, USA</i>)	

TC-9 Modelling Applications and Uncertainty Analysis in Simulations I

Chair: Gilles Peres, Airbus Group Innovations, Toulouse, France

- 8:20 am **A High Frequency Model of Toroidal Chokes for EMC Filtering** 902
Felix Traub (*ABB Switzerland AG, Baden-Dättwil, Switzerland*); Bernhard Wunsch (*ABB Switzerland AG, Baden-Dättwil, Switzerland*); Stanislav Skibin (*ABB Switzerland AG, Baden-Dättwil, Switzerland*)
Best Paper Award Finalist
- 8:45 am **Mutual Couplings between EMI Filter Components** 908
G. Asmanis (*Latvian Electronic Equipment Testing Center, Riga, Latvia*); D. Stepins (*Latvian Electronic Equipment Testing Center, Riga, Latvia*); A. Asmanis (*Latvian Electronic Equipment Testing Center, Riga, Latvia*); L. Ribickis (*Riga Technical University, Riga, Latvia*)
- 9:10 am **Field Uniformity in Radiated Field Immunity Tests** 914
Bruno Audone (*EMC Consultant, Torino, Italy*); Roberto Colombo (*IMQ S.p.A., Milan, Italy*); Michele Borsero (*INRIM, Torino, Italy*)
- 9:35 am **A Novel Approach for ESD-Immunity Analysis using Channel Transfer Impedance on the Power Delivery Network of a Large-Scale Integration Chip** 920
Sungwook Moon (*Samsung Electronics Co. Ltd., Hwaseong-si, Gyeonggi-do, South Korea*); Jihyun Lee (*Samsung Electronics Co. Ltd., Hwaseong-si, Gyeonggi-do, South Korea*); Jaeyoul Lee (*Samsung Electronics Co. Ltd., Hwaseong-si, Gyeonggi-do, South Korea*)

TC-9 Modelling Applications and Uncertainty Analysis in Simulations II

Chair: Gilles Peres, Airbus Group Innovations, Toulouse, France

- 10:20 am **Uncertainty Evaluation of Conducted Emission Measurements by Means of Conformal Mapping** 924
Bruno Audone (*EMC Consultant, Torino, Italy*); Alberto F. Finizio (*Politecnico di Milano, Milan, Italy*); Roberto Colombo (*IMQ S.p.A., Milan, Italy*)
- 10:45 am **Uncertainty Analysis in EMC Simulation based on Stochastic Collocation Method** 930
Bai Jinjun (*Harbin Institute of Technology, Harbin, China*); Zhang Gang (*Harbin Institute of Technology, Harbin, China*); Wang Lixin (*Harbin Institute of Technology, Harbin, China*); Alistair Duffy (*De Montfort University, Leicester, United Kingdom*)
- 11:10 am **Stochastic Kron's Model Inspired from the Random Coupling Model** 935
Chaouki Kasmi (*French Network and Information Security Agency, Paris, France*); Olivier Maurice (*GERAC Electromagnétisme, Trappes, France*); Gabriele Gradoni (*University of Nottingham, Nottingham, United Kingdom*); Thomas Antonsen Jr. (*University of Maryland, College Park, MD, USA*); Edward Ott (*University of Maryland, College Park, MD, USA*); Steven Anlage (*University of Maryland, College Park, MD, USA*)
- 11:35 am **Waveguide Simulation Approach for Transmission Analysis of Reinforced Concrete Wall Structures** 941
Simon Runke (*Bergische Universität Wuppertal, Wuppertal, Germany*); Martin Zang (*Bergische Universität Wuppertal, Wuppertal, Germany*); Joachim Streckert (*Bergische Universität Wuppertal, Wuppertal, Germany*); Volkert Hansen (*Bergische Universität Wuppertal, Wuppertal, Germany*); Markus Clemens (*Bergische Universität Wuppertal, Wuppertal, Germany*)

TC-9 Practical Applications of Numerical Modelling I

Chair: Samuel Connor, IBM Corporation, RTP, NC, USA

- 2:00 pm **Characterisation of Radiated Fields from PCBs in the Time Domain** 947
D.W.P. Thomas (*University of Nottingham, Nottingham, United Kingdom*); C. Smartt (*University of Nottingham, Nottingham, United Kingdom*); S. Greedy (*University of Nottingham, Nottingham, United Kingdom*)
- 2:25 pm **Challenges of Time Domain Measurement of Field-Field Correlation for Complex PCBs** 953
C. Smartt (*University of Nottingham, Nottingham, United Kingdom*); D.W.P. Thomas (*University of Nottingham, Nottingham, United Kingdom*); H. Nasser (*University of Nottingham, Nottingham, United Kingdom*); M. Baharuddin (*University of Nottingham, Nottingham, United Kingdom*); G. Gradoni (*University of Nottingham, Nottingham, United Kingdom*); S.C. Creagh (*University of Nottingham, Nottingham, United Kingdom*); G. Tanner (*University of Nottingham, Nottingham, United Kingdom*)
Best Paper Award Finalist
- 2:50 pm **A Fast Prediction for Shielding Effectiveness of Double Enclosures** 959
Liping Yan (*Sichuan University, Chengdu, China*); Xiang Zhao (*Sichuan University, Chengdu, China*); Yong Kan (*Sichuan University, Chengdu, China*); Changjun Liu (*Sichuan University, Chengdu, China*); Kama Huang (*Sichuan University, Chengdu, China*); Haijing Zhou (*Institute of Applied Physics and Computation Mathematics, Beijing, China*)
- 3:15 pm **Simulation of Conductive and Radiated Emissions from Wiper Motor According to CISPR 25 Standard** 963
I. Oganezova (*EMCoS Ltd. and Tbilisi State University, Tbilisi, Georgia*); R. Kado (*Fiat Chrysler Automobiles (FCA), Auburn Hills, MI, USA*); B. Khvitia (*EMCoS Ltd. and Tbilisi State University, Tbilisi, Georgia*); A. Gheonjian (*EMCoS Ltd. and Tbilisi State University, Tbilisi, Georgia*); R. Jobava (*EMCoS Ltd., Tbilisi, Georgia*)

TC-9 Practical Applications of Numerical Modelling II

Chair: Ronald Rambousky, Bundeswehr Research Inst. for Protective Technologies, Munster, Germany

- 4:00 pm **Delay-Rational Model of Lossy and Dispersive Multiconductor Transmission Lines** 969
Maria De Lauretis (*Luleå University of Technology, Luleå, Sweden*); Jonas Ekman (*Luleå University of Technology, Luleå, Sweden*); Giulio Antonini (*Università degli Studi dell'Aquila, L'Aquila, Italy*)
- 4:25 pm **Efficient Analytical Calculation of the Plane Wave Coupling to Uniform Transmission Lines with Arbitrary Load Resistances in Time Domain** 975
Mathias Magdowski (*Otto-von-Guericke-University, Magdeburg, Germany*); Ralf Vick (*Otto-von-Guericke-University, Magdeburg, Germany*)
- 4:50 pm **Modeling the Influence of Corona Discharge on High-Voltage Surges Propagating along Transmission Lines using TLM** 981
John L. Evans (*University of Nottingham, Nottingham, United Kingdom*); David W.P. Thomas (*University of Nottingham, Nottingham, United Kingdom*); Steve Greedy (*University of Nottingham, Nottingham, United Kingdom*)
- 5:15 pm **Coupled Arc Discharge Models in the TLM Method** 987
Ahmed Elkalsh (*University of Nottingham, Nottingham, United Kingdom*); Ana Vukovic (*University of Nottingham, Nottingham, United Kingdom*); Phillip Sewell (*University of Nottingham, Nottingham, United Kingdom*); Trevor M. Benson (*University of Nottingham, Nottingham, United Kingdom*)

TC-10 Signal and Power Integrity V

Chair: Bill Chen, Yangtze Delta Region Institute of Tsinghua University, Beijing, China

- 8:20 am **Compact Hybrid Open Stub EBG Structure for Power Noise Suppression in WLAN Band** ... 991
Chi-Kai Shen (*National Taiwan University, Taipei, Taiwan*); Tzong-Lin Wu (*National Taiwan University, Taipei, Taiwan*)
- 8:45 am **Noise Immunity Design for Multilayer Printed Circuit Boards using Electromagnetic Simulation** 997
Mamoru Kamikura (*Mitsubishi Electric Corporation, Hyogo, Japan*); Norihiko Akashi (*Mitsubishi Electric Corporation, Hyogo, Japan*); Yuichiro Murata (*Mitsubishi Electric Corporation, Hyogo, Japan*)
- 9:10 am **A Black-Box Measurement-Based Modeling Method for the RF Emission and Immunity Behavior of ICs** 1002
Hugo Pues (*Melexis Technologies NV, Tessenderlo, Belgium*); Celina Gazda (*Melexis Technologies NV, Tessenderlo, Belgium*)
- 9:35 am **Analysis of Intra-Chip Digital Noise Coupling Path in Fully LTE Compliant RF Receiver Test Chip** 1007
Masahiro Yamaguchi (*Tohoku University, Sendai, Japan*); Peng Fan (*Tohoku University, Sendai, Japan*); Satoshi Tanaka (*Tohoku University, Sendai, Japan*); Makoto Nagata (*Kobe University, Kobe, Japan*); Sho Muroga (*National Institute of Technology, Toyota College, Toyota, Japan*)

TC-10 Signal and Power Integrity VI

Chair: Bill Chen, Yangtze Delta Region Institute of Tsinghua University, Beijing, China

- 10:20 am **Conducted Emission Characteristics of CCM Boost Converter with SiC Schottky Barrier Diode** 1012
Takaaki Ibuchi (*Osaka University, Suita, Osaka, Japan*); Tsuyoshi Funaki (*Osaka University, Suita, Osaka, Japan*)
Best Student Paper Award Finalist
- 10:45 am **Susceptibility of Chopper OpAmps to EMI** 1018
Franco Fiori (*Politecnico di Torino, Torino, Italy*)
- 11:10 am **Low-Frequency Magnetic-Field Immunity Surface Scan Method** 1022
Mart Coenen (*EMCMCC, Breda, Netherlands*); Bharat Kathari (*IBI Group, New Delhi, India*)

TC-11 Nanotechnology and Advanced Materials in EMC I

Chair: MariaSabrina Sarto, Sapienza University of Rome, Rome, Italy

Co-Chair: Marina Koledintseva, Oracle, Menlo Park, CA, USA

- 2:00 pm **MWCNTs Nanocomposites for Space Applications** 1026
M. Nicoletto (*Thales Alenia Space Italia, Torino, Italy*); D. Boschetti (*Thales Alenia Space Italia, Torino, Italy*); M. Giorcelli (*Politecnico di Torino, Torino, Italy*); P. Savi (*Politecnico di Torino, Torino, Italy*)

2:25 pm **Optimal Terahertz Shielding Performances of Flexible Multilayer Screens based on Chemically Doped Graphene on Polymer Substrate** 1030
A.G. D'Aloia (*Sapienza University of Rome, Roma, Italy*); M. D'Amore (*Sapienza University of Rome, Roma, Italy*); M.S. Sarto (*Sapienza University of Rome, Roma, Italy*)

2:50 pm **Modelling of Multilayer Graphene (MLG)-Based Structures at Different Temperatures** ... 1036
Da-Wei Wang (*Zhejiang University, Hangzhou, China*); Wen-Sheng Zhao (*Hangzhou Dianzi University, Hangzhou, China*); Hong-Ke Ma (*Institute of Applied Electronics, Mianyang, China*); Wenchao Chen (*Zhejiang University, Hangzhou, China*); Wen-Yan Yin (*Zhejiang University, Hangzhou, China*)

3:15 pm **Electromagnetic Shielding Properties of Nano Carbon Filled Silicone Rubber Composites** ... 1041
Joseph Vimal Vas (*Indian Institute of Science, Bangalore, India*); M. Joy Thomas (*Indian Institute of Science, Bangalore, India*)
Best Student Paper Award Finalist

TC-11 Nanotechnology and Advanced Materials in EMC II

Chair: MariaSabrina Sarto, Sapienza University of Rome, Rome, Italy

Co-Chair: Marina Koledintseva, Oracle, Menlo Park, CA, USA

4:00 pm **Dynamically Reconfigurable Metamaterials for Shielding and Absorption in the GHz Range** 1047
F. de Paulis (*University of L'Aquila, L'Aquila, Italy*); C. Rizza (*University of Insubria, Como, Italy*); A. Ciattoni (*National Research Council, CNR-SPIN, L'Aquila, Italy*); E. Palange (*University of L'Aquila, L'Aquila, Italy*); A. Orlandi (*University of L'Aquila, L'Aquila, Italy*)

4:25 pm **HF Characteristics of Laminated Structure Consisting with Negative Permittivity and High Permittivity Materials** 1053
Shinichiro Yamamoto (*University of Hyogo, Himeji, Japan*); Masayoshi Okita (*University of Hyogo, Himeji, Japan*); Kenichi Hatakeyama (*University of Hyogo, Himeji, Japan*); Takanori Tsutaoka (*Hiroshima University, Higashi-Hiroshima, Japan*)

SS-5 Intentional Electromagnetic Interference (IEMI)

Protection of Critical Infrastructures I

Chair: Frank Sabath, Bundeswehr Research Institute for Protective Technologies and NBC Protection, Munster, Germany

8:20 am **IEMI-Testing of Electronic Systems in Critical Infrastructure Surrounding** 1057
Ronald Rambousky (*Bundeswehr Research Institute for Protective Technologies and NBC-Protection, Munster, Germany*); André Bausen (*Bundeswehr Research Institute for Protective Technologies and NBC-Protection, Munster, Germany*); Sebastian Lange (*Bundeswehr Research Institute for Protective Technologies and NBC-Protection, Munster, Germany*); Frank Sabath (*Bundeswehr Research Institute for Protective Technologies and NBC-Protection, Munster, Germany*)

8:45 am **Analysis of IEMI Effects on a Computer Network in a Realistic Environment** 1063
Matthias Kreitlow (*Bundeswehr Research Institute for Protective Technologies and NBC Protection, Munster, Germany*); Frank Sabath (*Bundeswehr Research Institute for Protective Technologies and NBC Protection, Munster, Germany*); Heyno Garbe (*Leibniz Universität Hannover, Hannover, Germany*)

9:10 am **HPEM Vulnerability of Radiation Meters used in Security Relevant Scenarios** 1068
C. Adami (*Fraunhofer INT, Euskirchen, Germany*); W. Berky (*Fraunhofer INT, Euskirchen, Germany*); M. Jöster (*Fraunhofer INT, Euskirchen, Germany*); T. Pusch (*Fraunhofer INT, Euskirchen, Germany*); M. Suhrke (*Fraunhofer INT, Euskirchen, Germany*)

9:35 am **Uncertainty Analysis in System-level Vulnerability Assessment for IEMI** 1073
Mao Congguang (*Nothwest Institute of Nuclear Technology and Politecnico di Torino, Xi'an, and Torino, China and Italy*); Flavio Canavero (*Politecnico di Torino, Torino, Italy*)

SS-5 Intentional Electromagnetic Interference (IEMI) Protection of Critical Infrastructures II

Chair: Frank Sabath, Bundeswehr Research Institute for Protective Technologies and NBC Protection, Munster, Germany

10:20 am **A Fuzzy Approach for IEMI Risk Analysis of IT-Systems with Respect to Transient Disturbances** 1077
Tim Peikert (*Leibniz Universität Hannover, Hannover, Germany*); Heyno Garbe (*Leibniz Universität Hannover, Hannover, Germany*); Stefan Potthast (*Bundeswehr Research Institute for Protective Technologies and NBC Protection, Munster, Germany*)

10:45 am **Assessing the Likelihood of Various Intentional Electromagnetic Environments: The Initial Step of an IEMI Risk Analysis** 1083
Frank Sabath (*Bundeswehr Research Institute for Protective Technologies and NBC Protection, Munster, Germany*); Heyno Garbe (*Leibniz Universität Hannover, Hannover, Germany*)

11:10 am **Method for Detecting Jamming Signals Superimposed on a Radio Communication – Application to the Surveillance of Railway Environments** 1089
Marc Heddebaut (*IFSTTAR, Villeneuve d'Ascq, France*); Virginie Deniau (*IFSTTAR, Villeneuve d'Ascq, France*); Jean Rioult (*IFSTTAR, Villeneuve d'Ascq, France*); Grégoire Copin (*IFSTTAR, Villeneuve d'Ascq, France*)

11:35 am **The European Project STRUCTURES: Challenges and Results** 1095
Stefan van de Beek (*University of Twente, Enschede, Netherlands*); John Dawson (*University of York, York, United Kingdom*); Linda Dawson (*University of York, York, United Kingdom*); Ian Flintoft (*University of York, York, United Kingdom*); Heyno Garbe (*Leibniz Universität Hannover, Hannover, Germany*); Frank Leferink (*University Twente and Thales Nederland B.V., Hengelo, Netherlands*); Benjamin Menssen (*Leibniz Universität Hannover, Hannover, Germany*); Nicolas Mora (*EPFL, Lausanne, Switzerland*); Farhad Rachidi (*EPFL, Lausanne, Switzerland*); Marco Righero (*Istituto Superiore Mario Boella, Torino, Italy*); Marcos Rubinstein (*University of Applied Sciences Western Switzerland, Yverdon, Switzerland*); Mirjana Stojilović (*University of Applied Sciences Western Switzerland, Yverdon, Switzerland*)

TC-5 HPEM Testing and Analysis

Chair: William Radasky, Metatech Corporation, Goleta, CA, USA

Co-Chair: Frank Sabath, Bundeswehr Research Institute for Protective Technologies and NBC Protection, Munster, Germany

2:00 pm **ESD Performance Evaluation of Powered High-Speed Interfaces** 1101
Sebastian Koch (*Intel Deutschland GmbH, Neubiberg, Germany*); Harald Gossner (*Intel Deutschland GmbH, Neubiberg, Germany*); Horst Gieser (*Fraunhofer-Einrichtung für Mikrosysteme und Festkörper-Technologien EMFT, München, Germany*); Linus Maurer (*Universität der Bundeswehr München, Neubiberg, Germany*)

- 2:25 pm **Using an In-Line Uninterruptable Power Supply as TEMPEST ‘Filter’ for Naval Vessels** 1106
Hans Bergsma (*Thales Netherlands, Hengelo, Netherlands*); Frank Leferink (*Thales Nederland and University of Twente, Hengelo, and Enschede, Netherlands*)
- 2:50 pm **Development of a Surge Simulation Code VSTL REV based on the 3D FDTD Method** 1111
Akiyoshi Tatematsu (*Central Research Institute of Electric Power Industry, Yokosuka, Japan*)
- 3:15 pm **EMC Analysis and Characterization of New Nanocomposite Laminates for Aeronautic Application** 1117
En-Xiao Liu (*Institute of High Performance Computing (IHPC), A*STAR, Singapore, Singapore*); Bui Viet Phuong (*Institute of High Performance Computing (IHPC), A*STAR, Singapore, Singapore*); Warintorn Thitsartarn (*Institute of Materials Research and Engineering, A*STAR, Singapore, Singapore*); Chaobin He (*Institute of Materials Research and Engineering, A*STAR, Singapore, Singapore*); Jayven Yeo (*Institute of Materials Research and Engineering, A*STAR, Singapore, Singapore*)

TC-5 IEMI Pulsers and Effects Evaluations

Chair: William Radasky, Metatech Corporation, Goleta, CA, USA

Co-Chair: Frank Sabath, Bundeswehr Research Institute for Protective Technologies and NBC Protection, Munster, Germany

- 4:00 pm **Experimental Investigations on the Pulsed Power Switch of a HIRA based UWB System** 1122
Vijay H. Bhosale (*LRDE, Bangalore, India*); D.C. Pande (*LRDE, Bangalore, India*); M. Joy Thomas (*Indian Institute of Science, Bangalore, India*); Joseph Vas (*Indian Institute of Science, Bangalore, India*)
Best Paper Award Finalist
- 4:25 pm **High Power Radiators and E-Field Sensors for Sub-Nanosecond Electromagnetic Pulses** 1127
Vladimir M. Fedorov (*Joint Institute for High Temperatures of Russian Academy of Sciences, Moscow, Russia*); Vasiliy Ye. Ostashev (*Joint Institute for High Temperatures of Russian Academy of Sciences, Moscow, Russia*); Vladimir P. Tarakanov (*Joint Institute for High Temperatures of Russian Academy of Sciences, Moscow, Russia*); Alekxander V. Ul'yanov (*Joint Institute for High Temperatures of Russian Academy of Sciences, Moscow, Russia*)
- 4:50 pm **Destructive High-Power Microwave Testing of Simple Electronic Circuit in Reverberation Chamber** 1133
Tomas Hurtig (*Swedish Defence Research Agency, Norra Sorunda, Sweden*); Leif Adelöw (*Swedish Defence Research Agency, Norra Sorunda, Sweden*); Mose Akyuz (*Swedish Defence Research Agency, Norra Sorunda, Sweden*); Mattias Elfsberg (*Swedish Defence Research Agency, Norra Sorunda, Sweden*); Anders Larsson (*Swedish Defence Research Agency, Norra Sorunda, Sweden*); Sten E. Nyholm (*Swedish Defence Research Agency, Norra Sorunda, Sweden*)
- 5:15 pm **Effect of Pulsed Interference on an ASK Receiver** 1136
Stefan van de Beek (*University of Twente, Enschede, Netherlands*); Silvo Jeunink (*University of Twente, Enschede, Netherlands*); Frank Leferink (*University of Twente and Thales Nederland B.V., Enschede, and Hengelo, Netherlands*)
Best Student Paper Award Finalist
- 5:40 pm **Status and Progress of IEC SC 77C High-Power Electromagnetics Publications in 2015** ... 1141
William A. Radasky (*Metatech Corporation, Goleta, CA, USA*); Richard Hoad (*QinetiQ Ltd., Farnborough, United Kingdom*)

SS-3 EMC Diagnostics of Complex Systems I

Chair: Vladimir Mordachev, Belarusian State Univ. of Informatics and Radioelectronics, Minsk, Belarus

- 2:00 pm **Worst-Case Estimation of Electromagnetic Background Near Ground Surface Created by Heterogeneous Radioelectronic Environment** 1147
Vladimir Mordachev (*Belarusian State University of Informatics and Radioelectronics, Minsk, Belarus*)
- 2:25 pm **Reduction of the Radiated Power of Cellular base Stations on Urban Area at High Intrasystem EMC Requirements** 1153
Vladimir Mordachev (*Belarusian State University of Informatics and Radioelectronics, Minsk, Belarus*)
- 2:50 pm **Investigation of the Transmitter Susceptibility to Reverse Intermodulation by the use of Double-Frequency Diagrams** 1159
Eugene Sinkevich (*Belarusian State University of Informatics and Radioelectronics, Minsk, Belarus*);
Vladimir Mordachev (*Belarusian State University of Informatics and Radioelectronics, Minsk, Belarus*)
- 3:15 pm **Computationally-Effective Worst-Case Estimation of Currents in Transmission Lines for EMC Diagnostics of Big Systems** 1165
D.A. Tsyanenka (*Belarusian State University of Informatics and Radioelectronics, Minsk, Belarus*);
E.V. Sinkevich (*Belarusian State University of Informatics and Radioelectronics, Minsk, Belarus*);
Y.Y. Arlou (*Belarusian State University of Informatics and Radioelectronics, Minsk, Belarus*);
S.V. Maly (*Belarusian State University, Minsk, Belarus*)

SS-3 EMC Diagnostics of Complex Systems II

Chair: Vladimir Mordachev, Belarusian State Univ. of Informatics and Radioelectronics, Minsk, Belarus

- 4:00 pm **Computationally-Effective Wideband Worst-Case Model of Transmission Line Radiation** ... 1171
D.A. Tsyanenka (*Belarusian State University of Informatics and Radioelectronics, Minsk, Belarus*);
Y.Y. Arlou (*Belarusian State University of Informatics and Radioelectronics, Minsk, Belarus*);
E.V. Sinkevich (*Belarusian State University of Informatics and Radioelectronics, Minsk, Belarus*);
S.V. Maly (*Belarusian State University, Minsk, Belarus*)
- 4:25 pm **A Tool for Coexistence Planning in Complex Radio Communication Environments** 1177
Sara Linder (*Swedish Defence Research Agency, Linköping, Sweden*); Kia Wiklundh (*Swedish Defence Research Agency, Linköping, Sweden*); Peter Stenumgaard (*Swedish Defence Research Agency, Linköping, Sweden*); Karina Fors (*Swedish Defence Research Agency, Linköping, Sweden*);
Leif Junholm (*Swedish Defence Material Administration (FMV), Östersund, Sweden*)

TUESDAY, AUGUST 18, 2015

Tuesday, August 18, 2015

Poster Session 1 Poster Session

Chair: Mauro Feliziani, University of L'Aquila, L'Aquila, Italy

Meet and Greet Authors 1:00 pm to 2:30 pm Tuesday.

- Investigation on the Effect of Impedance Changes in Broadband Antennas with Varying Antenna Height on Radiated Emission Measurement Below 1 GHz** 1183
Shinichi Okuyama (*NEC Platforms, Ltd., Kakegawa, Japan*); Ikuo Makino (*Fujitsu General EMC Laboratory, Ltd., Kawasaki, Japan*); Hiroyuki Shimanoe (*S-Tech Inc., Kawasaki, Japan*); Hidenori Muramatsu (*VCCI Council, Tokyo, Japan*)
- A Measurement System for Radiated Transient Electromagnetic Interference based on General Purpose Instruments** 1189
Marco A. Azpúrua (*Universitat Politècnica de Catalunya, Barcelona, Spain*); Marc Pous (*Universitat Politècnica de Catalunya, Barcelona, Spain*); Ferran Silva (*Universitat Politècnica de Catalunya, Barcelona, Spain*)
- Compensation Method for the Coupling Error between the EUT and TEM Cell in E-Field Probe Isotropic Calibration** 1195
Wang Huan (*China Academy of Information and Communications Technology, Beijing, China*); Zhong Chen (*ETS-Lindgren, Cedar Park, TX, USA*)
- On the Quality of a Real Open Area Test Site** 1201
Inès Barbary (*Helmut Schmidt University, Hamburg, Germany*); Lars-Ole Fichte (*Helmut Schmidt University, Hamburg, Germany*); Marcus Stierner (*Helmut Schmidt University, Hamburg, Germany*); Reiner Pape (*Physikalisch-Technische Bundesanstalt, Braunschweig, Germany*); Thomas Kleine-Ostmann (*Physikalisch-Technische Bundesanstalt, Braunschweig, Germany*); Thorsten Schrader (*Physikalisch-Technische Bundesanstalt, Braunschweig, Germany*); Sebastian Lange (*Bundeswehr Research Institute for Protective Technologies and NBC Protection, Munster, Germany*); Martin Schaarschmidt (*Bundeswehr Research Institute for Protective Technologies and NBC Protection, Munster, Germany*)
- Analytical Prediction of Common Mode Noise in a Source Stirred Reverberation Chamber** 1207
A. De Leo (*Università Politecnica delle Marche, Ancona, Italy*); V. Mariani Primiani (*Università Politecnica delle Marche, Ancona, Italy*); P. Russo (*Università Politecnica delle Marche, Ancona, Italy*); G. Cerri (*Università Politecnica delle Marche, Ancona, Italy*)
- EMC Analysis Including Receiver Characteristics – Pantograph Arcing and the Instrument Landing System** 1213
Robert Geise (*University of Braunschweig, Braunschweig, Germany*); Oliver Kerfin (*University of Braunschweig, Braunschweig, Germany*); Björn Neubauer (*University of Braunschweig, Braunschweig, Germany*); Georg Zimmer (*University of Braunschweig, Braunschweig, Germany*); Achim Enders (*University of Braunschweig, Braunschweig, Germany*)
- An Interlaboratory Comparison for Mobile Phone SAR** 1218
Andrei Marinescu (*ICMET, Craiova, 200746, Romania*); Yahya Emre Gülersoy (*ICTA MSL Directorate, Ankara, Turkey*); Gernot Schmid (*Seibersdorf Labor GmbH, Seibersdorf, Austria*)

Various Estimations of Composite Q-Factor with Antennas in a Reverberation Chamber	1223
Philippe Besnier (<i>IETR-CNRS-INSa de Rennes, Rennes, France</i>); Christophe Lemoine (<i>IETR-CNRS-INSa de Rennes, Rennes, France</i>); Jerome Sol (<i>IETR-CNRS-INSa de Rennes, Rennes, France</i>)	
Feasibility Study of Multi-Frequency Test in a Single Rotation of Mode Stirred Reverberation Chamber	1228
Vignesh Rajamani (<i>Oklahoma State University, Stillwater, OK, USA</i>); Gustav J. Freyer (<i>Consultant, Monument, CO, USA</i>)	
Limitations of a Stripline for Immunity Tests on Road Vehicle Components	1232
Moawia Al-Hamid (<i>Otto-von-Guericke-University, Magdeburg, Germany</i>); Ralf Vick (<i>Otto-von-Guericke-University, Magdeburg, Germany</i>); Martin Krüger (<i>Otto-von-Guericke-University, Magdeburg, Germany</i>); Philipp Wollmann (<i>Otto-von-Guericke University, Magdeburg, Germany</i>)	
Optimization of Experimental Procedure in EMC using Re-Sampling Techniques	1238
Chaouki Kasmi (<i>French Network and Information Security Agency, Paris, France</i>); Sébastien Lalléchère (<i>Université Clermont Auvergne, Université Blaise Pascal, Institut Pascal, CNRS, Aubière, France</i>); Sébastien Girard (<i>Université Clermont Auvergne, Université Blaise Pascal, Institut Pascal, CNRS, Aubière, France</i>); Emmanuel Prouff (<i>French Network and Information Security Agency, Paris, France</i>); Françoise Paladian (<i>Université Clermont Auvergne, Université Blaise Pascal, Institut Pascal, CNRS, Aubière, France</i>); Pierre Bonnet (<i>Université Clermont Auvergne, Université Blaise Pascal, Institut Pascal, CNRS, Aubière, France</i>)	
Alternative Conducted Emission Measurements with LISN Simulation & CISPR 16 Voltage Probe	1243
Osman Şen (<i>TUBITAK UME, Kocaeli, Turkey</i>); Soydan Çakır (<i>TUBITAK UME, Kocaeli, Turkey</i>); Savaş Acak (<i>TUBITAK UME, Kocaeli, Turkey</i>); Mustafa Çetintaş (<i>TUBITAK UME, Kocaeli, Turkey</i>)	
Direct Power Injection (DPI) Simulation Framework and Postprocessing	1248
Andrea Lavarda (<i>Graz University of Technology, Graz, Austria</i>); Bernd Deutschmann (<i>Graz University of Technology, Graz, Austria</i>)	
Adapter and Method for Improving the LISN Input Impedance Measurement Accuracy	1254
F. Ziadé (<i>Laboratoire National de Métrologie et d'Essais (LNE), Trappes, France</i>); M. Ouameur (<i>Laboratoire National de Métrologie et d'Essais (LNE), Trappes, France</i>); D. Bélières (<i>Laboratoire National de Métrologie et d'Essais (LNE), Trappes, France</i>); A. Polétaeff (<i>Laboratoire National de Métrologie et d'Essais (LNE), Trappes, France</i>); D. Allal (<i>Laboratoire National de Métrologie et d'Essais (LNE), Trappes, France</i>); M. Kokalj (<i>Slovenian Institute of Quality and Metrology (SIQ), Ljubljana, Slovenia</i>); B. Pinter (<i>Slovenian Institute of Quality and Metrology (SIQ), Ljubljana, Slovenia</i>)	
Alternative Conducted Immunity Testing with Multiple CDNs and Wire Winding	1260
Soydan Çakır (<i>TUBITAK UME, Kocaeli, Turkey</i>); Osman Şen (<i>TUBITAK UME, Kocaeli, Turkey</i>); Savaş Acak (<i>TUBITAK UME, Kocaeli, Turkey</i>); Mustafa Çetintaş (<i>TUBITAK UME, Kocaeli, Turkey</i>)	
Wide Band Measurements in Time-Domain with Current and Voltage Probes for Power Losses Evaluation and EMC Measurements on Power Converters	1266
Kevin Loudiere (<i>Laboratoire Ampère, Lyon, France</i>); Arnaud Bréard (<i>Laboratoire Ampère, Lyon, France</i>); Christian Vollaie (<i>Laboratoire Ampère, Lyon, France</i>); François Costa (<i>Université Paris-Est SATIE-CNRS, Cachan, France</i>); Houmam Moussa (<i>Labinal Power Systems, Réau, France</i>); Régis Meuret (<i>Labinal Power Systems, Réau, France</i>)	
<i>Best Student Paper Award Finalist</i>	

Time-Frequency Processing Adapted for the Different Electromagnetic Compatibility Issues in the Railways Domain	1272
Mohamed Raouf Kousri (<i>Technological Research Institute, Railenium, IFSTTAR and IEMN, University Lille1 Sciences and Technologies, Famars, and Villeneuve d'Ascq, France</i>); Virginie Deniau (<i>IFSTTAR, Villeneuve d'Ascq, France</i>); Marc Heddebaut (<i>IFSTTAR, Villeneuve d'Ascq, France</i>); Sylvie Baranowski (<i>IEMN, University Lille1 Sciences and Technologies, Villeneuve d'Ascq, France</i>); Jean Rioult (<i>IFSTTAR, Villeneuve d'Ascq, France</i>)	
Broadband Phase Resolving Spectrum Analyzer Measurement for EMI Scanning Applications	1278
Zongyi Chen (<i>TU Dortmund University, Dortmund, Germany</i>); Shubhankar Marathe (<i>Missouri University of Science and Technology, Rolla, MO, USA</i>); Hamed Kajbaf (<i>Amber Precision Instruments, San Jose, CA, USA</i>); Stephan Frei (<i>TU Dortmund University, Dortmund, Germany</i>); David Pommerenke (<i>Missouri University of Science and Technology, Rolla, MO, USA</i>)	
Spark-Less Electrostatic Discharge (ESD) on Display Screens	1284
Atieh Talebzadeh (<i>Missouri University of Science and Technology, Rolla, MO, USA</i>); Yingjie Gan (<i>Wuhan University of Technology, Wuhan, China</i>); Ki-Hyuk Kim (<i>Missouri University of Science and Technology, Rolla, MO, USA</i>); Yiqiang Zhang (<i>Nokia, Beijing, China</i>); David Pommerenke (<i>Missouri University of Science and Technology, Rolla, MO, USA</i>)	
Study on Triangular EBG Unit Cell Structures for Suppression of SSN in Power/Ground Planes	1290
Jong Hwa Kwon (<i>ETRI, Daejeon, South Korea</i>); Dong Uk Sim (<i>ETRI, Daejeon, South Korea</i>); Sang Il Kwak (<i>ETRI, Daejeon, South Korea</i>)	
Nonlinear Loaded Microstrip Interconnect Analysis with Temperature Effect	1294
B. Ravelo (<i>IRSEEM, St Etienne du Rouvray, France</i>)	
CSRR Common-Mode Filtering Structures in Multilayer Printed Circuit Boards	1300
Sang Goo Kang (<i>Rose-Hulman Institute of Technology, Terre Haute, IN, USA</i>); Garrett Shaffer (<i>Rose-Hulman Institute of Technology, Terre Haute, IN, USA</i>); Christopher Kodama (<i>Rose-Hulman Institute of Technology, Terre Haute, IN, USA</i>); Christopher O'Daniel (<i>Rose-Hulman Institute of Technology, Terre Haute, IN, USA</i>); Edward Wheeler (<i>Rose-Hulman Institute of Technology, Terre Haute, IN, USA</i>)	
Passive Device Degradation Models for an Electromagnetic Emission Robustness Study of a Buck DC-DC Converter	1304
He Huang (<i>CNRS, LAAS and Université de Toulouse, Toulouse, France</i>); Alexandre Boyer (<i>CNRS, LAAS and Université de Toulouse, Toulouse, France</i>); Sonia Ben Dhia (<i>CNRS, LAAS and Université de Toulouse, Toulouse, France</i>)	
Calculation of Power-Supply-Induced Jitter at a 3-D IC Channel including ESD Protection Circuits	1310
Eunkyeong Park (<i>Ulsan National Institute of Science and Technology, Ulsan, South Korea</i>); Jinguook Kim (<i>Ulsan National Institute of Science and Technology, Ulsan, South Korea</i>); Jongjoo Lee (<i>Samsung Electronics, Hwaseong, South Korea</i>); Youngwoo Park (<i>Samsung Electronics, Hwaseong, South Korea</i>)	
An Application of the Preference Set-Based Design Method to Filter Designs	1315
Masashi Kawakami (<i>The University of Electro-Communications, Tokyo, Japan</i>); Haruo Ishikawa (<i>The University of Electro-Communications, Tokyo, Japan</i>); Yoshio Kami (<i>The University of Electro-Communications, Tokyo, Japan</i>); Fengchao Xiao (<i>University of Electro-Communications, Tokyo, Japan</i>)	
Verification of Novel Extended Mixed-Mode S-Parameters on Three-Conductor Lines	1319
Nan Zhang (<i>Sungkyunkwan University, Suwon, South Korea</i>); Wansoo Nah (<i>Sungkyunkwan University, Suwon, South Korea</i>)	

How SI/EMC and Reliability Issues could Interact Together in Embedded Electronic Systems?	1323
Kirsten Weide-Zaage (<i>Leibniz Universität Hannover, Hannover, Germany</i>); Aymen Moujbani (<i>Leibniz Universität Hannover, Hannover, Germany</i>); Geneviève Duchamp (<i>Université de Bordeaux, Talence, France</i>); Tristan Dubois (<i>Université de Bordeaux, Talence, France</i>); Frédéric Verdier (<i>Université de Bordeaux, Talence, France</i>); Hélène Frémont (<i>Université de Bordeaux, Talence, France</i>)	

A Methodology to Characterize USB3 IO Link Signal Margin Variation in High Volume Manufacturing	1329
Steven Yun Ji (<i>Intel Corporation, Santa Clara, CA, USA</i>); Sudeep Puligundla (<i>Intel Corporation, Santa Clara, CA, USA</i>); Xiaoning Qi (<i>Intel Corporation, Santa Clara, CA, USA</i>); Michael Ling (<i>University of California at Berkley, Berkley, CA, USA</i>)	

Stochastic Macromodeling for Hierarchical Uncertainty Quantification of Nonlinear Electronic Systems	1335
D. Spina (<i>Ghent University, Ghent, Belgium</i>); D. De Jonghe (<i>KU Leuven, Leuven, Belgium</i>); F. Ferranti (<i>Vrije Universiteit Brussel, Brussels, Belgium</i>); G. Gielen (<i>KU Leuven, Leuven, Belgium</i>); T. Dhaene (<i>Ghent University, Gent, Belgium</i>); L. Knockaert (<i>Ghent University, Ghent, Belgium</i>); G. Antonini (<i>Università degli Studi dell'Aquila, L'Aquila, Italy</i>)	

WEDNESDAY, AUGUST 19, 2015

Wednesday, August 19, 2015

Poster Session 2

Chair: Hans Georg Krauthäuser, Technical University Dresden, Dresden, Germany
Meet and Greet Authors 1:00 pm to 2:30 pm Wednesday.

Design Considerations of a Damped Sinewave Generator	1339
Karl L. Thorup (<i>MOOG Inc., Salt lake City, UT, USA</i>)	

Evaluation of the Electric-Field Transfer Functions Between IEMI Sources and Banking IT Equipment	1345
Simon Runke (<i>Bergische Universität Wuppertal, Wuppertal, Germany</i>); Markus Clemens (<i>Bergische Universität Wuppertal, Wuppertal, Germany</i>); Mirjana Stojilović (<i>University of Applied Sciences Western Switzerland, Yverdon-les-Bains, Switzerland</i>); Sana Sliman (<i>University of Applied Sciences Western Switzerland, Yverdon-les-Bains, Switzerland</i>); Marcos Rubinstein (<i>University of Applied Sciences Western Switzerland, Yverdon-les-Bains, Switzerland</i>); Nicolas Mora (<i>EPFL, Lausanne, Switzerland</i>); Farhad Rachidi (<i>EPFL, Lausanne, Switzerland</i>)	

A Combined Time and Frequency Domain Characterization Method for Modeling of Overvoltage Protection Elements	1351
Stanislav Scheier (<i>TU Dortmund University, Dortmund, Germany</i>); Dominik Deelmann (<i>TU Dortmund University, Dortmund, Germany</i>); Stephan Frei (<i>TU Dortmund University, Dortmund, Germany</i>); Christian Widemann (<i>Leibniz Universität Hannover, Hannover, Germany</i>); Wolfgang Mathis (<i>Leibniz Universität Hannover, Hannover, Germany</i>)	

Mathematical Expression of Electromagnetic Pulse in Immunity Standards	1357
Corneliu Ursachi (<i>Transilvania University of Brasov, Brasov, Romania</i>); Elena Helerea (<i>Transilvania University of Brasov, Brasov, Romania</i>); Elena Larisa Mariut (<i>Transilvania University of Brasov, Brasov, Romania</i>); Marius Daniel Calin (<i>Transilvania University of Brasov, Brasov, Romania</i>)	

Accurate Measurement of Transmission Line Parameters for Automotive Ethernet	1363
Matthias Hampe (<i>Ostfalia University of Applied Science, Wolfenbuettel, Germany</i>)	
Design of Conductive Shield for Wireless Power Transfer System for Electric Vehicle Considering Automotive Body	1369
Hongseok Kim (<i>KAIST, Daejeon, South Korea</i>); Chiuk Song (<i>KAIST, Daejeon, South Korea</i>); Dong-Hyun Kim (<i>KAIST, Daejeon, South Korea</i>); Joungho Kim (<i>KAIST, Daejeon, South Korea</i>)	
BER Performance of GSM/EDGE Receiver under the Influence of Adjacent Channel Interference	1375
Zhaohai Jiang (<i>Universität der Bundeswehr, Neubiberg, Germany</i>); Harald Gossner (<i>Intel Mobile Communications, München, Germany</i>); Walter Hansch (<i>Universität der Bundeswehr, Neubiberg, Germany</i>)	
Modeling of Rectifiers for Resonance Studies: A Pivotal Approach	N/A
Felix O. Kalunta (<i>University of Lagos, Lagos, Nigeria</i>); Frank N. Okafor (<i>University of Lagos, Lagos, Nigeria</i>)	
Some EMC Aspects of a 2 MV Marx Generator with Sensitive Diagnostic Equipment in the Immedeate Vicinity	1388
A.P.J. van Deursen (<i>Eindhoven University of Technology, Eindhoven, Netherlands</i>); P. Kochkin (<i>Eindhoven University of Technology, Eindhoven, Netherlands</i>)	
Research on Twelve-Phase Round-Shaped Transformers Applied in Rectifier Systems	1392
Tiejun Wang (<i>Naval University of Engineering, Wuhan, China</i>); Fang Fang (<i>Naval University of Engineering, Wuhan, China</i>); Xiaoyi Jiang (<i>Naval University of Engineering, Wuhan, China</i>); Lv Yang (<i>Naval University of Engineering, Wuhan, China</i>)	
Wideband Characterization and Modeling of Coupled Inductors under Temperature Variations	1396
Fahim Hami (<i>VeDeCoM and IRSEEM/ESIGELEC, Versailles, and Saint Etienne du Rouvray, France</i>); Habib Boulzazen (<i>IRSEEM/ESIGELEC, Saint Etienne du Rouvray, France</i>); Moncef Kadi (<i>IRSEEM/ESIGELEC, Saint Etienne du Rouvray, France</i>) <i>Best Student Paper Award Finalist</i>	
Electromagnetic Interfering Characteristics into the Air by a Buried Conductor as a Secondary ELF Line Source	N/A
Sangmu Lee (<i>Electronics and Telecommunications Research Institute, Daejeon, South Korea</i>); Pyung-Dong Cho (<i>Electronics and Telecommunications Research Institute, Daejeon, South Korea</i>); Dongho Kim (<i>Sejong University, Seoul, South Korea</i>)	
Predicting the Conducted Emissions of Switched-Mode Power Converters Including Component and Printed Circuit Board Parasitics	1406
Sören Weßling (<i>Helmut Schmidt University / University of the Federal Armed Forces Hamburg, Hamburg, Germany</i>); Stefan Dickmann (<i>Helmut Schmidt University / University of the Federal Armed Forces Hamburg, Hamburg, Germany</i>)	
Modeling the Common Mode Impedance of Motor Drive Systems using the Antenna Wire Concept	1412
Rob Mestrom (<i>Eindhoven University of Technology, Eindhoven, Netherlands</i>); Anne Roc'h (<i>Eindhoven University of Technology, Eindhoven, Netherlands</i>); Yingzhe Xi (<i>Eindhoven University of Technology, Eindhoven, Netherlands</i>)	
Evaluation of Electric Current Exposure of Hand in Current Perception Threshold Measurement ...	1416
Yoshitsugu Kamimura (<i>Utsunomiya University, Utsunomiya, Japan</i>); Yosuke Sato (<i>Utsunomiya University, Utsunomiya, Japan</i>); Akira Yamashita (<i>Utsunomiya University, Utsunomiya, Japan</i>); Tomoaki Nagaoka (<i>National Institute of Information and Communications Technology, Tokyo, Japan</i>); Kanako Wake (<i>National Institute of Information and Communications Technology, Tokyo, Japan</i>)	

Behavior of Fast Variable Loads at the Connection to the Power Supplying Source	1420
Petre-Marian Nicolae (<i>University of Craiova, Craiova, Romania</i>); Lucian-Dinut Popa (<i>University of Craiova, Craiova, Romania</i>); Marian-Ştefan Nicolae (<i>University of Craiova, Craiova, Romania</i>); Ileana-Diana Nicolae (<i>University of Craiova, Craiova, Romania</i>)	
Statistical Estimation of Maximum Electric Field in Electrically Large Cavity using Extreme Value Theory	1426
Tarek Bdour (<i>XLIM Research Institute, Limoges, France</i>); Alain Reineix (<i>XLIM Research Institute, Limoges, France</i>)	
Processing of EMC Data with Factor Analysis	1430
O. Losito (<i>ITEL Telecomunicazioni srl, Ruvo di Puglia, Italy</i>); B. Audone (<i>Audone Consulting, Torino, Italy</i>); V. Dimiccoli (<i>ITEL Telecomunicazioni srl, Ruvo di Puglia, Italy</i>)	
Propagation Effects on Lightning Magnetic Fields Over Hilly and Mountainous Terrain	1436
D. Li (<i>Nanjing University of Information Science and Technology (NUIST) and EPFL, Nanjing, and Lausanne, China and Switzerland</i>); J. Paknahad (<i>Shahid Beneshti University, Tehran, Iran</i>); F. Rachidi (<i>EPFL, Lausanne, Switzerland</i>); M. Rubinstein (<i>University of Applied Sciences of Western Switzerland, Yverdon, Switzerland</i>); K. Sheshyekani (<i>Shahid Beneshti University, Tehran, Iran</i>); Q. Zhang (<i>Nanjing University of Information Science and Technology (NUIST), Nanjing, China</i>); Z. Wang (<i>Nanjing University of Information Science and Technology (NUIST), Nanjing, China</i>)	
Calculation of Electromagnetic Emission using Discontinuous Galerkin Time Domain Method	1441
I. Badzagua (<i>EMCoS Ltd. and Tbilisi State University, Tbilisi, Georgia</i>); D. Eremian (<i>EMCoS Ltd., Tbilisi, Georgia</i>); B. Khvitia (<i>EMCoS Ltd. and Tbilisi State University, Tbilisi, Georgia</i>); Z. Kuchadze (<i>EMCoS Ltd., Tbilisi, Georgia</i>); G. Chiqovani (<i>EMCoS Ltd., Tbilisi, Georgia</i>); Z. Sukhiashvili (<i>EMCoS Ltd., Tbilisi, Georgia</i>); A. Gheonjian (<i>EMCoS Ltd. and Tbilisi State University, Tbilisi, Georgia</i>); R. Jobava (<i>EMCoS Ltd., Tbilisi, Georgia</i>)	

THURSDAY, AUGUST 20, 2015

Thursday, August 20, 2015

Poster Session 3

Chair: Bob Scully, NASA, Houston, TX, USA

Meet and Greet Authors 1:00 pm to 2:30 pm Thursday.

Reformation of the Japanese Guidelines for Cellular Phone use in Hospitals	1446
Eisuke Hanada (<i>Saga University, Saga, Japan</i>); Takashi Kano (<i>Saitama Medical University, Hidaka, Japan</i>)	
Grounded Theory and EMC Immunity Test – On the use of Grounded Theory based upon Collected Test Data and Design Guidelines for Achievement of Good EMC Performance	1452
Per Thaastrup Jensen (<i>DELTA, Hoersholm, Denmark</i>); Anders Pilgaard Mynster (<i>DELTA, Hoersholm, Denmark</i>); Rasmus Brun Behnke (<i>DELTA, Hoersholm, Denmark</i>); Jeppe Pilgaard Bjerre (<i>DELTA, Hoersholm, Denmark</i>)	
Can the New EMC Directive, 2014/30/EU, Stem the Tide of Non-Compliant Products?	1457
Nick Wainwright (<i>University of York, York, United Kingdom</i>)	
MRI Image Distortion due to Magnetic Materials in Medical Implants	1463
Dick W. Harberts (<i>Philips Innovation Services, Eindhoven, Netherlands</i>); Mark van Helvoort (<i>Philips Healthcare, Best, Netherlands</i>)	

Directivity and Effective Radius of an Electrically Large EUT with Attached Wires	1467
Xiaowei Wang (<i>Otto-von-Guericke-University, Magdeburg, Germany</i>); Ralf Vick (<i>Otto-von-Guericke-University, Magdeburg, Germany</i>)	
Identification of Electromagnetic Radiation Source with Support Vector Machines	1473
Dan Shi (<i>Beijing University of Posts and Telecommunications, Beijing, China</i>); Junjian Bi (<i>Shijiazhuang Mechanical Engineering, Shijiazhuang, China</i>); Chao Li (<i>Ministry of Industry and Information Technology, Beijing, China</i>); Zhiliang Tan (<i>Shijiazhuang Mechanical Engineering, Shijiazhuang, China</i>); Hongbo Wang (<i>Ministry of Industry and Information Technology, Beijing, China</i>); Yougang Gao (<i>Beijing University of Posts and Telecommunications, Beijing, China</i>)	
Protection Against Common Mode Currents on Exposed Cables	1478
B.J.A.M. (Bart) van Leersum (<i>University of Twente and Defence Materiel Organisation, Enschede, and The Hague, Netherlands</i>); C.C.J. (Jan-Kees) van der Ven (<i>Imtech Marine Netherlands B.V., Rotterdam, Netherlands</i>); F.J.K. (Frits) Buesink (<i>University of Twente, Enschede, Netherlands</i>); F.B.J. (Frank) Leferink (<i>University of Twente and Thales Nederland B.V., Enschede, and Hengelo, Netherlands</i>)	
<i>Best Paper Award Finalist</i>	
Prediction of PCB Radiated Emission in Shielding Cavity using Equivalent Dipole Modeling	1484
WenJie Kong (<i>Zhejiang University, Hangzhou, China</i>); Er-Ping Li (<i>Zhejiang University, Hangzhou, China</i>)	
Diagnosis and Suppression of the Electromagnetic Interference in Vehicle Co-Site Radio System	1489
Xie Ma (<i>Southwest Communication Institute, Chengdu, China</i>)	
Analysis of a Healthcare Platform RF Emission in Indoor Environment	N/A
B. Ravelo (<i>IRSEEM, St Etienne du Rouvray, France</i>); J. Miranda (<i>Centro Algoritmi, University of Minho, Guimarães, Portugal</i>); J. Cabral (<i>Centro Algoritmi, University of Minho, Guimarães, Portugal</i>); S. Wagner (<i>Aarhus University, Aarhus, Denmark</i>); C.F. Pedersen (<i>Aarhus University, Aarhus, Denmark</i>); M. Memon (<i>Aarhus University, Aarhus, Denmark</i>); M. Mathiesen (<i>Sekoia, Aarhus, Denmark</i>); A.K. Jastrzebski (<i>University of Kent, Canterbury, United Kingdom</i>)	
Grounding Design for Low-Cost Ball Grid Array Package with High Shielding Effectiveness	1501
Keiju Yamada (<i>Toshiba Corporation, Kawasaki, Japan</i>); Masaaki Ishida (<i>Toshiba Corporation, Kawasaki, Japan</i>); Tomohiro Iguchi (<i>Toshiba Corporation, Yokohama, Japan</i>)	
A Statistical Approach to the Result of FM Broadcast Frequency Deviation Measurements	1507
Georgij Leontjev (<i>Communications Regulatory Authority, Vilnius, Lithuania</i>)	
Optimization of Spectrum Monitoring Network in VHF-UHF Range using Irregular Structure of Network	N/A
Vadym Blagodarnyi (<i>State Enterprise "Ukrainian State Centre of Radio Frequencies", Kiev, Ukraine</i>); Mykola Kaliuzhnyi (<i>Kharkiv National University of Radio Electronics, Kharkiv, Ukraine</i>)	
EMC Analysis between Fixed Service and Broadcasting Satellite Service in the Band 10.7 - 11.7 GHz Interference Evaluation	1517
Ryszard J. Zielinski (<i>Wroclaw University of Technology, Wroclaw, Poland</i>)	
Compact Wideband Balanced Filter for Eliminating Radio-Frequency Interference on Differentially-Fed Antennas	1521
Ying-Cheng Tseng (<i>National Taiwan University, Taipei, Taiwan</i>); Pei-Yang Weng (<i>National Taiwan University, Taipei, Taiwan</i>); Tzong-Lin Wu (<i>National Taiwan University, Taipei, Taiwan</i>)	

A General Measurement Method of Parameter Extraction for High-Frequency Mounted Cables with Arbitrary Connectors	1527
Xinwei Song (<i>Beihang University, Beijing, China</i>); Junjun Wang (<i>Beihang University, Beijing, China</i>); Bing Li (<i>Beihang University, Beijing, China</i>); Donglin Su (<i>Beihang University, Beijing, China</i>)	
Characterization of EMI Effects in Communication Data Link System in the Presence of High-Power Radar Radiation	1533
Jing Jin (<i>State Key Lab of Complex Electromagnetic Environment Effects on Electronics and Information System (CEMEE) and Zhejiang University, Luoyang, and Hangzhou, China</i>); Hao Xie (<i>Zhejiang University, Hangzhou, China</i>); Gang Zhao (<i>Institute of Applied Electronics, CAEP, Mianyang, China</i>); Jian Wang (<i>Ningbo University, Ningbo, China</i>); Manxi Wang (<i>State Key Lab of Complex Electromagnetic Environment Effects on Electronics and Information System (CEMEE), Luoyang, China</i>); Wen-Yan Yin (<i>Zhejiang University, Hangzhou, China</i>)	
Active Absorption/Transmission FSS using Diodes	1538
Shinya Kitagawa (<i>Aoyama Gakuin University, Kanagawa, Japan</i>); Ryosuke Suga (<i>Aoyama Gakuin University, Kanagawa, Japan</i>); Kiyomichi Araki (<i>Tokyo Institute of Technology, Tokyo, Japan</i>); Osamu Hashimoto (<i>Aoyama Gakuin University, Kanagawa, Japan</i>)	
An Extension of Schelkunoff's Shielding Theory to Anisotropic Conducting Multilayer Materials	1542
Fabian Happ (<i>Technische Universität Hamburg-Harburg, Hamburg, Germany</i>); Frank Gronwald (<i>Technische Universität Hamburg-Harburg, Hamburg, Germany</i>); Heinz-D. Brüns (<i>Technische Universität Hamburg-Harburg, Hamburg, Germany</i>)	
Modeling Absorbing Materials for EMI Mitigation	1548
Qian Liu (<i>Missouri University of Science and Technology, Rolla, MO, USA</i>); Xiangyang Jiao (<i>Missouri University of Science and Technology, Rolla, MO, USA</i>); Jing Li (<i>Missouri University of Science and Technology, Rolla, MO, USA</i>); Victor Khilkevich (<i>Missouri University of Science and Technology, Rolla, MO, USA</i>); James Drewniak (<i>Missouri University of Science and Technology, Rolla, MO, USA</i>); Paul Dixon (<i>Laird Technologies, Randolph, MA, USA</i>); Yoeri Arien (<i>Laird Technologies, Geel, Belgium</i>)	
Experimental Analysis and Modelling of Coaxial Transmission Lines with Soft Shield Defects	1553
H. Manesh (<i>Labinal Power Systems, Université Paris-Est, Blagnac, and Marne-la-Vallée, France</i>); J. Genoulaz (<i>Labinal Power Systems, Blagnac, France</i>); A. Kameni (<i>Université Paris-Sud, Gif-sur-Yvette, France</i>); F. Loete (<i>Université Paris-Sud, Gif-sur-Yvette, France</i>); L. Pichon (<i>Université Paris-Sud, Gif-sur-Yvette, France</i>); O. Picon (<i>Université Paris-Est, Marne-la-Vallée, France</i>)	
Using Simulation & Joint Time/Frequency Domain Analysis to Evaluate Absorber/Lossy Material Performance in Resonant Cavities	1559
Bruce Archambeault (<i>Missouri University of Science & Technology, and IBM Corporation, Four Oaks, NC, USA</i>); Michael Varner (<i>Rose-Hulman Institute of Technology, Terre Haute, IN, USA</i>); Jiawei Zhang (<i>Rose-Hulman Institute of Technology, Terre Haute, IN, USA</i>); Sam Connor (<i>IBM Corporation, Research Triangle Park, NC, USA</i>); Edward Wheeler (<i>Rose-Hulman Institute of Technology, Terre Haute, IN, USA</i>)	
Use of Metamaterials Structures to Reduce the SAR in the Human Head	N/A
Hafawa Messaoudi (<i>Université de Tunis El Manar, Ecole Nationale d'Ingénieurs de Tunis, Tunis, Tunisie</i>); Taoufik Aguilu (<i>Université de Tunis El Manar, Ecole Nationale d'Ingénieurs de Tunis, Tunis, Tunisie</i>)	