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Best SIPI Paper Award Finalist
Best Student Paper Award Finalist

2:30 pm **Optimum Properties of an EMI Absorber for Signal Integrity Applications** ..... N/A
Zulfiqar A. Khan *(3M, St. Paul, MN, USA)*

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WEDNESDAY TECHNICAL PAPERS

Wednesday, July 27, 2016

WED-AM-1 Nanomaterials and Nanostructures 8:30 am - 10:00 am

Chair: Alessio Tamburrano, Sapienza University of Rome, Rome, Italy
Co-Chair: Emmanuel Decrossas, California Institute of Technology, Pasadena, CA, USA

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WED-AM-2 Numerical Methods and Analysis for Signal Integrity 8:30 am - 10:00 am

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Co-Chair: Zhiping Yang, Google Inc., Santa Clara, CA, USA

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Chair: Robert Davis, Lockheed Martin, Syracuse, NY, USA
Co-Chair: Ross Carlton, National Instruments, Austin, TX, USA

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Chair: Marcos Rubinstein, HEIG-Vd, Switzerland, Yverdon-les-bains, Switzerland
Co-Chair: Michael McInerney, US Army Corp of Engineers, Champaign, IL, USA

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WED-AM-5-SIPI Electrical Characterization of High Speed Interconnects (Part 1) 8:30 am - 10:00 am

Chair: Mauro Lai, Intel Corporation, DuPont, WA, USA
Co-Chair: Tao Wang, Missouri University of Science and Technology, Rolla, MO, USA

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Chair: Zhiping Yang, Google Inc., Santa Clara, CA, USA
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WED-PM-2 Wireless Coexistence 1:30 pm - 5:00 pm

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Co-Chair: Harry Skinner, Intel Corporation, Hillsboro, OR, USA

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WED-PM-3 Circuit and System EMC Analysis 1:30 pm - 5:30 pm

Chair: Todd Hubing, LearnEMC, Stoughton, WI, USA
Co-Chair: Mark Montrose, Montrose Compliance Services, Santa Clara, CA, USA

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Best EMC Paper Award Finalist
Best Student Paper Award Finalist

WED-PM-4 3D IC integration: SI/PI Modelling and Measurement — 1:30 pm - 5:30 pm

Chair: Antonio Orlandi, University of L'Aquila, L'Aquila, Italy
Co-Chair: Brice Achkir, Cisco Systems, Inc., San Jose, CA, USA

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Daniel H. Jung *(Korea Advanced Institute of Science and Technology (KAIST), Daejeon, Korea, The Republic of);* Jonghoon J. Kim *(Korea Advanced Institute of Science and Technology (KAIST), Daejeon, Korea, The Republic of);* Heegon Kim *(Korea Advanced Institute of Science and Technology (KAIST), Daejeon, Korea, The Republic of);* Sumin Choi *(Korea Advanced Institute of Science and Technology (KAIST), Daejeon, Korea, The Republic of);* Jaemin Lim *(Korea Advanced Institute of Science and Technology (KAIST), Daejeon, Korea, The Republic of);* Joungho Kim *(Korea Advanced Institute of Science and Technology (KAIST), Daejeon, Korea, The Republic of);* Hyun-Cheol Bae *(Electronics and Telecommunications Research Institute, Daejeon, Korea, The Republic of);* Kwang-Seong Choi *(Electronics and Telecommunications Research Institute, Daejeon, Korea, The Republic of)*

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WED-PM-5-SIPI Electrical Characterization of High Speed Interconnects (Part 2) 1:30 pm - 5:30 pm

Chair: Jim Nadolny, Samtec, Mechanicsburg, PA, USA
Co-Chair: Eric Bogatin, Teledyne LeCroy Front Range Signal Integrity Lab, Longmont, CO, USA

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Arash Zargaran-Yazd *(Rambus Inc., Sunnyvale, CA, USA)*

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WED-PM-6 Power Delivery and Jitter/Noise (Part 2) 1:30 pm - 5:30 pm

Chair: A. Ege Engin, San Diego State University, San Diego, CA, USA
Co-Chair: Bill Chen, Yangtze Delta Region Institute of Tsinghua University, Beijing, China

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Artur N. de Sao José *(Federal Center for Technological Education of Minas Gerais, Belo Horizonte, Brazil);* Úrsula C. Resende *(Federal Center for Technological Education of Minas Gerais, Belo Horizonte, Brazil);* Magno A. de Menezes *(Pontifical Catholic University of Minas Gerais, Belo Horizonte, Brazil);* José H. Ferreira *(Federal Center for Technological Education of Minas Gerais, Belo Horizonte, Brazil)*

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M. Joy Thomas *(Indian Institute of Science, Bangalore, India)*

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Kimitoshi Murano *(Tokai University, Kanagawa, Japan);* Naoki Takata *(Tokai University, Kanagawa, Japan);* Misaki Hoshino *(Tokai University, Kanagawa, Japan);* Yoshio Kami *(University of Electro-Communications, Tokyo, Japan);* Fengchao Xiao *(University of Electro-Communications, Tokyo, Japan);* Majid Tayarani *(Iran University of Science and Technology, Tehran, Iran)*

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THURSDAY TECHNICAL PAPERS

Thursday, July 28, 2016

TH-AM-1 Antennas — 8:30 am - 12:00 pm

Chair: Bob Hofmann, Hofmann EMC Engineering, Naperville, IL, USA
Co-Chair: Ghery Pettit, Pettit EMC Consulting, Olympia, WA, USA

8:30 am **An Evaluation of using Small Biconical Antennas in Normalized Site Attenuation Measurements** 667
Hironari Tanaka *(Ohtama Calibration Service Co., Ltd., Tokyo, Japan);* Ikuo Makino *(Fujitsu General EMC Laboratory, Ltd., Kawasaki, Japan);* Hiroyuki Shimanoe *(S-Tech Inc., Kawasaki, Japan);* Hidenori Muramatsu *(VCCI Council, Tokyo, Japan)*

9:00 am **A New Method to Calculate Phase Center Locations for Arbitrary Antenna Systems and Scenarios** 674
Dominic Härke *(Leibniz Universität Hannover, Hannover, Germany);*
Heyno Garbe *(Leibniz Universität Hannover, Hannover, Germany);*
Prashant Chakravarty *(University of York, York, United Kingdom)*
Best Student Paper Award Finalist

9:30 am **Limitations of Symmetry Test Method for Antennas as Specified in ANSI C63.5-2006 Standard** 679
Anoop Adhyapak *(ETS-Lindgren, Cedar Park, TX, USA);*
Zhong Chen *(ETS-Lindgren, Cedar Park, TX, USA)*

10:30 am **Saturation of Active Loop Antennas** 684
Alexander Kriz *(Seibersdorf Laboratories, Seibersdorf, Austria)*

11:00 am **5G Wireless Communications (60 GHz Band) for Smart Grid – An EMC Perspective** 689
Dheena Moongilan *(Nokia Bell Laboratories, Murray Hill, NJ, USA)*

11:30 am **Super Resolution Emission Source Microscopy using Water Immersion** 695
Victor Khilkevich *(Missouri University of Science and Technology, Rolla, MO, USA);*
Rajashree Ghorude *(Missouri University of Science and Technology, Rolla, MO, USA);*
David Pommerenke *(Missouri University of Science and Technology, Rolla, MO, USA)*

TH-AM-2 ESD Testing and Simulation 8:30 am - 10:00 am

Chair: Harald Gossner, Intel Deutschland GmbH, Neubiberg, Germany
Co-Chair: Nate Peachey, Qorvo, Greensboro, NC, USA

8:30 am **Simulation of ESD Coupling into Cables based on ISO 10605 Standard using Method of Moments** 701
I. Oganezova *(EMCoS Ltd. & Tbilisi State University, Tbilisi, Georgia);* G. Shen *(Missouri University of Science and Technology, Rolla, MO, USA);* S. Yang *(Missouri University of Science and Technology, Rolla, MO, USA);* D. Pommerenke *(Missouri University of Science and Technology, Rolla, MO, USA);* V. Khilkevich *(Missouri University of Science and Technology, Rolla, MO, USA);* R. Jobava *(EMCoS Ltd., Tbilisi, Georgia)*

9:00 am **ESD to the Display Inducing Currents Measured using a Substitution PC Board** 707
Satyajeet Shinde *(Missouri University of Science and Technology, Rolla, MO, USA);* Jianchi Zhou *(Missouri University of Science and Technology, Rolla, MO, USA);* Shubhankar Marathe *(Missouri University of Science and Technology, Rolla, MO, USA);* Atieh Talebzadeh *(Missouri University of Science and Technology, Rolla, MO, USA);* Yingjie Gan *(Wuhan University of Technology, Wuhan, China);*
David Pommerenke *(Missouri University of Science and Technology, Rolla, MO, USA);* Pengyu Wei *(Microsoft Corporation, Beijing, China)*

9:30 am **IEC 61000-4-2 ESD Test in Display Down Configuration for Cell Phones** 713
Jianchi Zhou *(Missouri University of Science and Technology, Rolla, MO, USA);* Satyajeet Shinde *(Missouri University of Science and Technology, Rolla, MO, USA);* Yuandong Guo *(Missouri University of Science and Technology, Rolla, MO, USA);* Atieh Talebzadeh *(Missouri University of Science and Technology, Rolla, MO, USA);* Shubhankar Marathe *(Missouri University of Science and Technology, Rolla, MO, USA);* Yingjie Gan *(Wuhan University of Technology, Wuhan, China);*
Ki-Hyuk Kim *(Missouri University of Science and Technology, Rolla, MO, USA);*
David Pommerenke *(Missouri University of Science and Technology, Rolla, MO, USA)*

TH-AM-3 Special Session: Terrestrial Electromagnetics of Aerospace (Part 2 of Aerospace Special Session) 8:30 am - 10:30 am

Chair: Bob Scully, NASA Johnson Space Center, Houston, TX, USA
Co-Chair: James Lukash, Lockheed Martin, Santa Clara, CA, USA

8:30 am **Electromagnetic Compatibility and Interference Practical Analyses for Beam Waveguide Ground Antennas** 719
Fabio Pelorossi *(Department of Information Engineering, Electronics and Telecommunications and European Space Agency, Rome and Darmstadt, Italy and Germany);*
Piermario Besso *(European Space Agency, Darmstadt, Germany);*
Luciano Garramone *(Italian Space Agency, Rome, Italy)*

9:00 am **TDOA Measurement for P-Static Source Location on Aircraft** 725
Ivan Garcia-Hallo *(Airbus, Toulouse, France);* Dominique Lemaire *(Airbus, Toulouse, France);*
Nathalie Raveu *(Université de Toulouse, Toulouse, France);* Gilles Peres *(Airbus, Toulouse, France)*

9:30 am **Investigation on Improvements in Lightning Retest Criteria for Spacecraft** 731
Alex Terseck *(NASA Kennedy Space Center, Cape Canaveral, FL, USA);*
Dawn Trout *(NASA Kennedy Space Center, Cape Canaveral, FL, USA)*

10:00 am **Evaluation of Transient Pin-Stress Requirements for Spacecraft Launching in Lightning Environments** 737
Paul Edwards *(NASA Kennedy Space Center, Cape Canaveral, FL, USA);* Alex Terseck *(NASA Kennedy Space Center, Cape Canaveral, FL, USA);* Dawn Trout *(NASA Kennedy Space Center, Cape Canaveral, FL, USA)*

TH-AM-4 Computational Electromagnetics (II) 8:30 am - 12:00 pm

Chair: James West, Oklahoma State University, Stillwater, OK, USA
Co-Chair: Samuel Connor, IBM Corporation, RTP, NC, USA

8:30 am **Near-Field Measurements Based Source Reconstruction Approach for Radiated Emissions Prediction** 743
Jun Li *(Zhejiang University, Hangzhou, China);* Xing-Chang Wei *(Zhejiang University, Hangzhou, China);* Jun Li *(Chinese Academy of Sciences, Beijing, China)*

9:00 am **Application of Generalized Linear Models to Evaluate Nuclear EMP Tests** 748
Lars Ole Fichte *(Helmut Schmidt University, Hamburg, Germany);* Sven Knoth *(Helmut Schmidt University, Hamburg, Germany);* Stefan Potthast *(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);* Marcus Stiemer *(Helmut Schmidt University, Hamburg, Germany)*

9:30 am **Estimation of Interference between Antennas on Large Platforms using Physics-Based Truncation Model and Multi-Level Fast Multipole Method** 754
Huapeng Zhao *(University of Electronic Science and Technology of China, Chengdu, China);* Siping Gao *(A*STAR Institute of High Performance Computing, Singapore, Singapore);* Weijiang Zhao *(A*STAR Institute of High Performance Computing, Singapore, Singapore);* Qun Wan *(University of Electronic Science and Technology of China, Chengdu, China);* Jun Hu *(University of Electronic Science and Technology of China, Chengdu, China);* Zhizhang Chen *(Dalhousie University and University of Electronic Science and Technology of China, Halifax, NS, and Chengdu, Canada and China)*

10:30 am **Canonical Statistical Model for Maximum Expected Immission of Wire Conductor in an Aperture Enclosure** 758
Paul G. Bremner *(Robust Physics, Del Mar, CA, USA);* Gabriel Vazquez *(NASA Kennedy Space Center, Cape Canaveral, FL, USA);* Dawn H. Trout *(NASA Kennedy Space Center, Cape Canaveral, FL, USA);* Daniel J. Christiano *(NASA Kennedy Space Center, Cape Canaveral, FL, USA)*
Best EMC Paper Award Finalist

11:00 am **Characterizing EMI Radiation Physics Corresponding to Distributive Geometry Features Using the PEEC Method** 764
Ying S. Cao *(The Univeristy of Hong Kong, Hong Kong, Hong Kong);* Yansheng Wang *(Missouri University of Science and Technology, Rolla, MO, USA);* Li Jun Jiang *(The University of Hong Kong, Hong Kong, Hong Kong);* Albert E. Ruehli *(Missouri University of Science and Technology, Rolla, MO, USA);* James L. Drewniak *(Missouri University of Science and Technology, Rolla, MO, USA);* Jun Fan *(Missouri University of Science and Technology, Rolla, MO, USA)*

11:30 am **Full-Wave Modeling of Bulk Current Injection Probe Coupling to Multi-Conductor Cable Bundles** 770
Patrick DeRoy *(CST of America, Inc., Framingham, MA, USA);* Scott Piper *(General Motors, Milford, MI, USA)*

TH-AM-5 Passive Component Modeling and Measurement 8:30 am - 12:00 pm

Chair: Hanqiao Zhang, Intel Corporation, DuPont, WA, USA
Co-Chair: Marina Koledintseva, Missouri University of Science and Technology, Rolla, MO, USA

8:30 am **S-Parameter Estimation Algorithm for Coaxial Ring Resonator** 775
Jingnan Pan *(Missouri University of Science and Technology, Rolla, MO, USA);* Xu Gao *(Missouri University of Science and Technology, Rolla, MO, USA);* Chunchun Sui *(Missouri University of Science and Technology, Rolla, MO, USA);* Jun Fan *(Missouri University of Science and Technology, Rolla, MO, USA);* Zhiping Yang *(Google Inc., Santa Clara, CA, USA);* Ken Wu *(Google Inc., Santa Clara, CA, USA)*

9:00 am **Differential Probe Characterization** 780
Qian Wang *(Missouri University of Science and Technology, Rolla, MO, USA);* Yuanci Gao *(Missouri University of Science and Technology, Rolla, MO, USA);* Jun Fan *(Missouri University of Science and Technology, Rolla, MO, USA);* James Drewniak *(Missouri University of Science and Technology, Rolla, MO, USA);* Richard Zai *(PacketMicro, Inc., Santa Clara, CA, USA)*

TH-AM-6 SI/PI/EMC Co-Simulation and Numerical Methods 8:30 am - 12:00 pm

Chair: Antonio Ciccomancini, CST of America, Framingham, MA, USA
Co-Chair: Darryl Kostka, CST of America, San Matteo, CA, USA

8:30 am **Correlation of Crosstalk and Power Noise Induced Ringback and Jitter in an LPDDR Interface** 786
Gerardo Romo *(Qualcomm Technologies, Inc., San Diego, CA, USA);* Scott Powers *(Qualcomm Technologies, Inc., San Diego, CA, USA);* Tim Michalka *(Qualcomm Technologies, Inc., San Diego, CA, USA);* Choon Chai *(Qualcomm Technologies, Inc., San Diego, CA, USA);* Denny Kurniawan *(Qualcomm Technologies, Inc., San Diego, CA, USA)*

9:00 am **A Wideband Common-Mode Suppression Filter using Enhanced Coupled Defected Ground Structure** 791
Ding-Bing Lin *(National Taipei University of Technology, Taipei, Taiwan);* Yi-Hsien Lee *(National Taipei University of Technology, Taipei, Taiwan)*

9:30 am **Common-Mode Noise Reduction of Bended Coupled Lines by using Time Compensation Technique** 797
Ding-Bing Lin *(National Taipei University of Technology, Taipei, Taiwan);* Chung-Pin Huang *(National Taipei University of Technology, Taipei, Taiwan);* Chih-Hao Lin *(National Taipei University of Technology, Taipei, Taiwan);* Hsin-Nan Ke *(Pegatron Corporation, Taipei, Taiwan);* Wen-Sheng Liu *(Wieson Technologies Co., Ltd., Taipei, Taiwan)*

10:30 am **2.5D Methodologies for Electronic Package and PCB Modeling: Review and Latest Development** 801
En-Xiao Liu *(A*STAR Institute of High Performance Computing, Singapore, Singapore);* Xing-Chang Wei *(Zhejiang University, Hangzhou, China);* Er-Ping Li *(Zhejiang University, Hangzhou, China)*

11:00 am **A Novel Iterative Method for Approximating Frequency Response with Equivalent Pole/Residues** 806
Venkatesh Avula *(University of Idaho, Moscow, ID, USA);* Ata Zadehgol *(University of Idaho, Moscow, ID, USA);* Adam El-Mansouri *(Micron Technology Inc., Boise, ID, USA);* Fuad Badrieh *(Micron Technology Inc., Boise, ID, USA);* Brent Keeth *(Micron Technology Inc., Boise, ID, USA)*

11:30 am **Design Space Exploration for Printed Circuit Board vias using Polynomial Chaos Expansion** 812
Jan B. Preibisch *(Technische Universität Hamburg-Harburg, Hamburg, Germany);* Piero Triverio *(University of Toronto, Toronto, ON, Canada);*
Christian Schuster *(Technische Universität Hamburg-Harburg, Hamburg, Germany)*

TH-PM-1 Immunity Measurements 2:30 pm - 4:30 pm

Chair: William Radasky, Metatech Corporation, Goleta, CA, USA
Co-Chair: Chuck Bunting, Oklahoma State University, Stillwater, OK, USA

2:30 pm **Changes in a Printed Circuit Board's Absorption Cross Section Due to Proximity to Walls in a Reverberant Environment** 818
S.L. Parker *(University of York, York, United Kingdom);* I.D. Flintoft *(University of York, York, United Kingdom);* A.C. Marvin *(University of York, York, United Kingdom);* J.F. Dawson *(University of York, York, United Kingdom);* S.J. Bale *(University of York, York, United Kingdom);*
M.P. Robinson *(University of York, York, United Kingdom);* Ming Ye *(Huawei Technologies AB, Kista, Sweden);* Changyong Wan *(Huawei Technologies Co. Ltd, Shenzhen, China);*
Mengze Zhang *(Huawei Technologies Co. Ltd, Shenzhen, China)*

3:00 pm **Minimum Upset/Failure Threshold Statistics of Devices for HERO/EMV Testing** 824
Carl E. Hager IV *(Naval Surface Warfare Center Dahlgren, Dahlgren, VA, USA);*
Justin D. Rison *(Naval Surface Warfare Center Dahlgren, Dahlgren, VA, USA);*
Gregory B. Tait *(Naval Surface Warfare Center Dahlgren, Dahlgren, VA, USA)*

3:30 pm **Extension of the IEC 61000-4-20 Annex C to the use of Arbitrary Transient Signals** 829
Niklas Briest *(Leibniz Universität Hannover, Hannover, Germany);* Heyno Garbe *(Leibniz Universität Hannover, Hannover, Germany);* David Hamann *(Anglerweg 14b, Gifhorn, Germany);*
Stefan Potthast *(Bundeswehr Research Institute for Protective Technologies and NBC Protection, Munster, Germany)*
Best EMC Paper Award Finalist
Best Student Paper Award Finalist

4:00 pm **Customized Compact Dielectric Lens to Improve Double-Ridge Horn Antenna Performance for Automotive Immunity EMC Test** 835
Aidin Mehdipour *(ETS-Lindgren Inc., Cedar Park, TX, USA);* Zhong Chen *(ETS-Lindgren Inc., Cedar Park, TX, USA);* Leo Matytsine *(Matsing Pte Ltd, Techlink, Singapore)*

TH-PM-2 High-Energy Transients and Measurement Technique 2:30 pm - 4:00 pm

Chair: Thomas Braxton, Shure Incorporated, Niles, IL, USA
Co-Chair: Keith Armstrong, Cherry Clough Consultants Ltd, Stafford, United Kingdom

2:30 pm **Accreditation of a NEMP Test Procedure: Approach, Measurement Technique, Uncertainty** 841
Matthias Kreitlow *(Bundeswehr Research Institute for Protective Technologies and NBC Protection, Munster, Germany);* Gernot Schmidt *(Bundeswehr Research Institute for Protective Technologies and NBC Protection, Munster, Germany);* Frank Sabath *(Bundeswehr Research Institute for Protective Technologies and NBC Protection, Munster, Germany)*

3:00 pm **Verifying MIL-STD-461G CS101 using Frequency Domain Measurements on an Oscilloscope** 847
Michael Schnecker *(Rohde & Schwarz, Doylestown, PA, USA)*

3:30 pm **Conducted Emission Profile Spectra Analysis Assessment of Impulse Transients** 852
Larry Freeman *(SNL, Melbourne, FL, USA);*
Thomas Wu *(University of Central Florida, Orlando, FL, USA)*

TH-PM-3 Robust System Performance Issues 2:30 pm - 3:30 pm

Chair: Vignesh Rajamani, Exponent, Phoenix, AZ, USA
Co-Chair: James West, Oklahoma State University, Stillwater, OK, USA
Co-Chair: Chuck Bunting, Oklahoma State University, Stillwater, OK, USA

2:30 pm **Wireless Communication Problems in Energy-Efficient Building Construction** 857
William B. Kuhn *(Kansas State University, Manhattan, KS, USA)*

3:00 pm **Performance Test of Unmanned Aerial Systems Communication Links in Severe Multipath Environment** 862
Jacob Dixon *(Oklahoma State University, Stillwater, OK, USA);* Vignesh Rajamani *(Oklahoma State University, Stillwater, OK, USA);* Chuck Bunting *(Oklahoma State University, Stillwater, OK, USA)*

TH-PM-4 Power Quality and Conducted EMC in Power Electronics, Energy Efficient Technologies, including Electrical Drives 2:30 pm - 4:00 pm

Chair: Dave Thomas, University of Nottingham, Nottingham, United Kingdom
Co-Chair: Frank Leferink, Thales Nederland B.V., Hengelo, Netherlands

2:30 pm **Estimation of Radiation Patterns from the Stator Winding of AC Motors Using Array Model** 868
Hyeokjun Jo *(Ulsan National Institute of Science and Technology, Ulsan, Korea, The Republic of);* Ki Jin Han *(Ulsan National Institute of Science and Technology, Ulsan, Korea, The Republic of)*

3:00 pm **On Harmonic Source Identification in Power Distribution Network with Multiple Non-linear Loads** ..... N/A
Osita U. Omeje *(University of Lagos, Akoka-Yaba, Nigeria);*
Frank N. Okafor *(University of Lagos, Akoka-Yaba, Nigeria)*

3:30 pm **Common Mode Current Prediction from a Power Converter with Attached Cables based on a Terminal Equivalent Circuit Model** 880
Satyajeet Shinde *(Missouri University of Science and Technology, Rolla, MO, USA);*
Abhishek Patnaik *(Missouri University of Science and Technology, Rolla, MO, USA);*
Tamar Makharashvilli *(Missouri University of Science and Technology, Rolla, MO, USA);*
Kohei Masuda *(Panasonic Corporation, Osaka, Japan);* David Pommerenke *(Missouri University of Science and Technology, Rolla, MO, USA)*

TH-PM-5 Active link, Optics and 5G 2:30 pm - 5:00 pm

Chair: Zhichao Zhang, Intel Corporation, Chandler, AZ, USA
Co-Chair: Zhen Zhou, Intel Corporation, Santa Clara, CA, USA

2:30 pm **Nanotube-based Antennas and Their Applications to Interconnects** 886
Zhengfang Qian *(Shenzhen University, Shenzhen, China)*

3:00 pm **EMI Coupling Paths in Silicon Optical Sub-assembly Package** 890
Jing Li *(Missouri University of Science and Technology, Rolla, MO, USA);* Xiao Li *(Missouri University of Science and Technology, Rolla, MO, USA);* Xiangyang Jiao *(Cisco Systems, Inc., San Jose, CA, USA);* Sukhjinder Toor *(Cisco Systems, Inc., San Jose, CA, USA);* Ling Zhang *(Missouri University of Science and Technology, Rolla, MO, USA);* Alpesh Bhobe *(Cisco Systems, Inc., San Jose, CA, USA);* James Drewniak *(Missouri University of Science and Technology, Rolla, MO, USA);* David Pommerenke *(Missouri University of Science and Technology, Rolla, MO, USA)*

3:30 pm **2x25G Low Power Optical IC for Thunderbolt Optical Cable Technology** 896
Jerry Gao *(Intel Corporation, Santa Clara, CA, USA);* Hengju Cheng *(Intel Corporation, Santa Clara, CA, USA);* Hui-Chin Wu *(Intel Corporation, Santa Clara, CA, USA);* Guobin Liu *(Intel Corporation, Santa Clara, CA, USA);* Edmond Lau *(Intel Corporation, Santa Clara, CA, USA);* Li Yuan *(Intel Corporation, Santa Clara, CA, USA);* Christine Krause *(Intel Corporation, Santa Clara, CA, USA)*

4:00 pm **Sub-THz Interconnect Channel for Planar Chip-to-Chip Communication** 901
Bo Yu *(University of California, Davis, Davis, CA, USA);* Yu Ye *(University of California, Davis, Davis, CA, USA);* Xiaoguang Liu *(University of California, Davis, Davis, CA, USA);* Qun Jane Gu *(University of California, Davis, Davis, CA, USA)*
Best Student Paper Award Finalist

4:30 pm **PAM4 Signaling Considerations for High-Speed Serial Links** 906
N. Dikhaminjia *(Missouri University of Science and Technology, Rolla, MO, USA);* J. He *(Missouri University of Science and Technology, Rolla, MO, USA);* M. Tsiklauri *(Missouri University of Science and Technology, Rolla, MO, USA);* J. Drewniak *(Missouri University of Science and Technology, Rolla, MO, USA);* J. Fan *(Missouri University of Science and Technology, Rolla, MO, USA);* A. Chada *(Dell Inc., Round Rock, TX, USA);* B. Mutnury *(Dell Inc., Round Rock, TX, USA);* B. Achkir *(Cisco Systems, Inc., San Jose, CA, USA)*

TH-PM-6 Numerical Modeling and Simulation Techniques 2:30 pm - 5:00 pm

Chair: Olena Zhu, Intel Corporation, Santa Clara, CA, USA
Co-Chair: Roni Khazaka, McGill University, Montreal, QC, Canada
Co-Chair: Yuriy Shlepnev, Simberian Inc., Las Vegas, NV, 89146, USA

2:30 pm **Modeling of Differential Striplines in Segmented Simulation of Printed Circuit Board Links** 911
Torsten Reuschel *(Technische Universität Hamburg-Harburg, Hamburg, Germany);* Miroslav Kotzev *(Technische Universität Hamburg-Harburg, Hamburg, Germany);* David Dahl *(Technische Universität Hamburg-Harburg, Hamburg, Germany);* Christian Schuster *(Technische Universität Hamburg-Harburg, Hamburg, Germany)*

3:00 pm **Practical Method for Modeling Conductor Roughness using Cubic Close-Packing of Equal Spheres** 917
Lambert Simonovich *(Lamsim Enterprises Inc., Ottawa, ON, Canada)*

3:30 pm **Discrete Hilbert Transform Based Delay Causality Enforcement for Network Parameters** 921
M. Tsiklauri *(Missouri University of Science and Technology, Rolla, MO, USA);* M. Zvonkin *(Missouri University of Science and Technology, Rolla, MO, USA);* N. Dikhaminjia *(Missouri University of Science and Technology, Rolla, MO, USA);* J. Fan *(Missouri University of Science and Technology, Rolla, MO, USA);* J. Drewniak *(Missouri University of Science and Technology, Rolla, MO, USA)*

4:00 pm **Design Methodology for Behavioral Surface Roughness Model** 927
Xinyao Guo *(Missouri University of Science and Technology, Rolla, MO, USA);* Han Gao *(Missouri University of Science and Technology, Rolla, MO, USA);* Guangyao Shen *(Missouri University of Science and Technology, Rolla, MO, USA);* Qian Liu *(Missouri University of Science and Technology, Rolla, MO, USA);* Victor Khilkevich *(Missouri University of Science and Technology, Rolla, MO, USA);* James Drewniak *(Missouri University of Science and Technology, Rolla, MO, USA);* Soumya De *(Cisco Systems, Inc., San Jose, CA, USA);* Scott Hinaga *(Cisco Systems, Inc., San Jose, CA, USA);* Douglas Yanagawa *(Cisco Systems, Inc., San Jose, CA, USA)*

4:30 pm **SNEM: Full S-Parameter Synthesis From Near-End Measurement** 932
Yunhui Chu *(Intel Corporation, Hillsboro, OR, USA);* Kai Xiao *(Intel Corporation, DuPont, WA, USA);* Yu Ho *(Intel Corporation, Chandler, AZ, USA);* Rob Friar *(Intel Corporation, Hillsboro, OR, USA);* Gong Ouyang *(Intel Corporation, DuPont, WA, USA);* Beomtaek Lee *(Intel Corporation, Santa Clara, CA, USA);* Zhichao Zhang *(Intel Corporation, Chandler, AZ, USA)*
Best SIPI Paper Award Finalist