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IEEE Electrical Design of Advanced Packaging and Systems
Virtual Event
December 12-14, 2022
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DECEMBER 12 – MONDAY

10:00 – 10:40: Tutorial I: Predictive Modeling Methodologies for Automotive Power Converters EMC Testing
Dipanjan Gope, *IISC*, Rajen Murugan, *TI*

10:40 – 10:50: Cadence Presentation

10:50 – 11:30: Tutorial II: Reinforcement Learning Methodologies for Package and Interconnect Design, Haeyeon Kim, *KAIST*

11:30 – 12:10: Packaging Benchmark

12:10 – 12:50: Tutorial III: Universal Chiplet Interconnect Express - an Overview, Ramaswamy Parthasarathy, *Intel,*

12:50 – 13:00: Qualcomm Presentation

13:00 – 13:40: Tutorial IV: The basis for Artificial Neural Networks as Powerful Machine Learning Engines - Applications of Perceptron, MultiLayer Perceptron and Convolutional Neural Networks
Mahendra Gooroochurn, *University of Mauritius*

13:40 – 14:10: TC-EDMS

DECEMBER 13 – TUESDAY

10:00 – 10:10: Welcome Remarks

10:10 – 10:40: Keynote Speech
Meeting High Speed Interface Performance at Reduced System Cost: From Low-Cost Mobile, IoT to High Performance Compute
Goutham Sabavat, *Qualcomm*

11:00 – 13:00: Session T-I: Power Integrity
Chairs: Arun Chandrasekhar, *Intel*

T-I.1. Design and Analysis of Power Integrity of DDR5 Dual In-Line Memory Modules [12], Shinyoung Park, Vinod Arjun Huddar, *Rambus*

T-I.2. Analytical Models for Embedded Discrete and Thin Film Capacitors in Multilayered Printed Circuits [69], Ihsan Erdin, *Celestica*

T-I.3. Multi-lane SerDes Power Delivery Network Challenges and Decap Optimization [72], Akhila

Purushothaman, Siddharth Rajagopalan, Mukesh Moorthy, *Synopsys*

T-I.4. A Methodology to Optimize the Number and Placement of Decoupling Capacitors in a Multilevel Power Delivery Network [98] (Student Competition), Ram Krishna*, Thong Nguyen*, Atom Watanabe+,Dale Becker+, Arvind Kumar+, Elyse Rosenbaum*, **UIUC+IBM*

T-I.5.Power Integrity and Enablement Challenges for Integrated Dual-Mode Linear Voltage Regulator in Next Generation Intel® Core Microprocessor [84], Deeksha Rawat, Chilla Venugopal Reddy, Vishal Gupta, Gaurav Kumar Singh**,** *Intel*

T-I.6. The Eccentrics of CPU FIVR AGS supply noise debug and learnings [97], Druvika Pandita, Veerendra K Jonna , Kim Meng Chen ,Muzzamil Peerjade, Ashish Kumar Singh, Anil B Lingambudi, Intel

13:10 – 15:10: Session T-II: Electro-Thermo Co-Simulation & Reliability

Chair: Rohit Sharma, *IIT, Ropar*

T-II.1. A New Current Crowding Phenomenon for Flip-Chip-on-Leadframe (FCOL) Package and its Impact on Electro-migration Reliability [43], Sylvester Ankamah-Kusi, Koduri Sreenivasan, Rajen Murugan, *Texas Instruments*

T-II.2. Thermal solution for Co-Packaged Optics (CPO) modules [22], Keiji Matsumoto, Mukta Farooq , John Knickerbocker**,** *IBM*

T-II.3. Power Distribution Network Impedance Analysis considering Thermal Distribution [59] (Student Competition), Keeyoung Son, Daehwan Lho, Keunwoo Kim, Seonguk Choi, Haeyeon Kim, Hyunwook Park,Boogyo Sim, Hyunwoo Kim, Taein Shin, Joungho Kim, *KAIST*

T-II.4. Thermal Analysis of DDR5 DIMM with Forced Air Cooling Method [60] (Student Competition), Keeyoung Son*, Daehwan Lho*, Seongguk Kim*, Joonsang Park*, Keunwoo Kim*, Namhyeon Choi+, Hyunsik Kim+, Joungho Kim*, **KAIST, +SK Hynix*

T-II.5. Efficient Discharge Waveform Distribution Measurement Using Active Machine Learning [64], Yuting Xie, Ling Zhang, Junhui Chen, Da Li, Zhenzhong Yang, Dan Ren, Er-Ping Li**,** *Zhejiang University*

T-II.6. Electromagnetic-Thermal Co-simulation of a Patch Antenna [99], Xin Yi Liu*, Zheng Lang Jia*, Huan Huan Zhang*, Ying Liu*, Mei Song Tong+, **Xidian University, +Tongji University*

15:20 – 17:20: Session T-III: Antenna Design and Modeling

Chair: Haeyeon Kim, *KAIST*

T-III.1. Design of 915 MHz phased conformal patch antenna array for deep tumor hyperthermia based on realistic breast model and SAR optimization [20] Hongan Zhou, Rui Zhang, Ye Tian, Hongli Peng, Shanghai Jiao Tong University

T-III.2. Resonant subsurface terahertz absorber based on patterned graphene [37] (Student Competition), Xuan Wang*, Yuxian Zhang*, Lixia Yang*, Zhixiang Huang*, Mei Song Tong**, and Naixing Feng*, **Anhui University, **Tongji University*

T-III.3. An Approach of Developing 77GHz MIMO Radar with High Angular Resolution Ability [39] Xing Liao, Kuayue Liu, Qingmian Wan, Hongli Peng, JunFa Mao, *Shanghai Jiao Tong University*

T-III.4. Analysis of the Slot on a Dual-Band Antenna [62], Chi-Hau Yang+, Yi-Ting Ciou+, Lih-Tyng Hwang***,** **National Sun Yat-Sen University, +Zylux Acoustic Corporation*

T-III.5. A Novel 3-D Frequency Selective Structure for Radiation Leakage Suppression in Sub-6G Highly Integrated Package [75], Yun-Long Wu, Da Li, Yu-Di Fan, Han-Zhi Ma, Er-Ping Li**,** *Zhejiang University*

T-III.6. A Novel Miniaturized Aperture Hexagonal Frequency Selective Surface [77], Xiaodong An, Da Li, Li Erping, *Zhejiang University*

17:30 – 18:30: Session T-IV: Poster Session PT2

Chair: Shurun Tan*, ZJUI*

T-IV.1. A Novel High Capacitance Ratio RF MEMS Switch with Low Pull-in Voltage [11] (Student Competition), Chengqi Lai, Zhongliang Deng, Yucheng Wang*, Beijing University of Posts and Telecommunications*

T-IV.2. Investigation of Chirp Stepped Signal Performance for 60GHz Millimeter Wave Radar [40], Kuayue Liu, Xing Liao, Qingmian Wan, Hongli Peng, Junfa Mao, *Shanghai Jiao Tong University*

T-IV.3. A Dual-Band Compact Antenna Array with Scattering Suppression Capability In Low Band [41], Shiyu Sun, Hongli Peng, Hongan Zhou, Qingmian Wan, *Shanghai Jiao Tong University,*

T-IV.4. Mode Matching Analysis of Partially Filled Waveguide for Determining Electrical Property Parameters of Penetrable Materials [46], Bo. O. Zhu**, Xiao Yu Li*, Min Ye*, Yun Jing Zhang+, Mei Song Tong*, **Tongji University,, +Soochow University, **Nanjing University*

T-IV.5. A Compensation Amplifier with Automatic Zeroing and Stable Chopping [47], Qi Ying Liang, Mei Song Tong**,** *Tongji University*

T-IV.6. Small Wireless Module Consisting of Two Highly Isolated MIMO PIFAs [63], Chi-Hau Yang+, Yi-Ting Ciou+, Lih-Tyng Hwang***,** **NSYSU, +Zylux Acoustic Corporation*

T-IV.7. Design and Analysis of Hierarchical Power Distribution Network (PDN) for Full Wafer Scale Chip (FWSC) Module [65] (Student Competition), Hyunwoo Kim, Joonsang Park, Keeyoung Son, Hyunwook Park, Taein Shin, Keunwoo Kim, Jiwon Yoon, Junghyun Lee, Jonghyun Hong, Juneyoung Kim, Joungho Kim, Haeyeon Kim*, KAIST*

T-IV.8. Fast Eye Diagram Simulation based on Latency Insertion Method [105], Yi Zhou, Bobi Shi, Yixuan Zhao, and Jose Schutt-Aine**,** *UIUC*

T-IV.9. Artificial Intelligence Based Advanced Signal Integrity Predictions [95], Prerna, Nithya Ramalingam, Zaman Zaid Mulla, Archana Ganeshan, Ranjul Balakrishnan, Anoop Karunan**,** *Intel*

T-IV.10. A Novel Dualband Patch Antenna with Liquid Mental and Flexible Packaging for Strain Sensing [100], Peng Rui Zhang*, Ajay K. Poddar**, Ulrich L. Rohde**, and Mei Song Tong*, **Tongji University, **Synergy Microwave Corporation*

DECEMBER 14 – WEDNESDAY

10:10 – 10:50: Keynote Speech

Spintronics Technology for Energy-Efficient Computing Applications: Challenges and Opportunities, Shaloo Rakheja, *University of Illinois*

11:00 – 13:00: Session W-I: Advanced Simulation Methods

Chairs: Arkaprovo Das, *Penn State University*

W-I.1. Passive Modeling of Interconnects Using Sum of Squares Partial Fraction Expansions [56], Francisco Coronado, Arif Ege Engin**,** *San Diego State University*

W-I.2. Acceleration of Vector Fitting by Reusing the Householder Reflectors in Multiple QR Factorization [55], Chiu-Chih Chou*, Jose Schutt-Aine+**,** **NCU, +UIUC*

W-I.3. Training Set Optimization with Uncertainty Quantification for Machine Learning Models of Electromagnetic Structures [27] (Student Competition), Yiliang Guo, Osama Waqar Bhatti, Madhavan Swaminathan**,** *Georgia Tech*

W-I.4. Modeling Cascade-able Transceiver Blocks With Neural Network For High Speed Link Simulation [57], Yixuan Zhao*, Thong Nguyen*, Hanzhi Ma+, Er-Ping Li+, Andreas Cangellaris*, Jose Schutt-Aine*, **UIUC, +Zhejiang University*

W-I.5. Deep Reinforcement Learning-based Decoupling Capacitor Optimization Method for Multi-Power Domain considering Transfer Noise in 3D-ICs [80] (Student Competition), Seonghi Lee, Hyunwoong Kim, Dongryul Park, Jangyong Ahn, Seunghun Ryu, Gagyeong Park, Seungyoung Ahn, *KAIST*

W-I.6. Latency Insertion Method for FinFET DC Operating Point Simulation Based on BSIM-CMG [108], Yi Zhou, Jose Schutt-Aine, *UIUC*

13:10 – 15:30: Session W-II: Novel Interconnects & Signal Integrity

Chairs: Chiu-Chih Chou, *NCU*

W-II.1. Statistical Method for Eye Diagram Simulation in a High-Speed Link Nonlinear System [101], Bobi Shi, Yi Zhou, Thong Nguyen, Jose Schutt-Aine**,** *UIUC*

W-II.2. ENRZ vs. NRZ: A Performance Comparison at 112 Gbps [85], Sherman Chen*, Zhifei Xu**, Francesco de Paulis+**,** **Kandou Bus, **Detoolic Technology,, +University of l'Aquila*

W-II.3. IC Package with the system board Interconnects - simulation showing PDN noise due to simultaneous switching IOs and its effect on Signal Integrity [26], Rajesh Badala Jagadeesh*, Venkatesh Ramashastry+, Bharath Ramprasad, Surya Prakash, Rao Bengaluru Srihari, Satvik Bhat, Vignesh Sunku Radhakrishna, *Tessolve Semiconductor*

W-II.4. Channel Impedance Optimization For 100 Gbps High-Speed Networking Interfaces [110], Chu Paul, Lin

Eva, James Chen, Liao Chun-Lin, Bandi Sathvika, Mallikarjun Vasa, Bhyrav Mutnury, *Dell*

W-II.5. Development and Comparative Analysis of Delay Fault Models for Variants of High Speed CNT Interconnects at Submicron Technology [53]
Urmi Shah, Usha Mehta, *Nirma University*

W-II.6. Hybrid Copper-Graphene Package Interconnects for Channel loss Improvement in High-Speed Serial Interfaces [114], Kavitha Nagarajan, Ajay Kumar Vaidhyanathan, Parthasarathy Ramaswamy, Suyash Kushwaha, Rohit Sharma**,** *Intel*

W-II.7. Tapered Differential Multibit Through Glass Vias for Three-Dimensional Integrated Circuits [78], Ajay Kumar, Rohit Dhiman, *National Institute of Technology, Hamirpur*

15:40 – 17:00: Session W-I, I: High-Frequency Structure Design and Measurement Techniques
Chairs: Hanzhi Ma, *ZJUI*

W-III.1. 2x-Thru De-embedding Uncertainty for On-Package High-Speed Interconnects [21]
Cemil Geyik*, Michael Hill+, Zhichao Zhang+, Kemal Aygun+, James Aberle*, **Intel,, *Arizona State University*

W-III.2. Radio Frequency Interference Characterization of 5G Device with Reciprocity Theorem [15], Michael Chang, Simon Kao, Stephen Chu, Bryant Hsu, Mark Ciou, Harrison Hu, Robby Ho, *HTC*

W-III.3. A Novel FSS for High/Low Frequency Band Beam Transparent Scanning/Grounding [38], ShiYu Sun, Hongli Peng, Hongan Zhou, Qingmian Wan**,** *Shanghai Jiao Tong University*

W-III.4. A high-sensitive resonant cavity for measuring the concentration of aqueous solutions [74], Ying Tian*, Zhang Yun Jing*, Tong Mei Song+**,** **Soochow University, +Tongji University*

17:00-17:10: Awards & Closing Remarks