

2023 IEEE Electrical Design of Advanced Packaging and Systems (EDAPS 2023)

**Rose-Hill, Mauritius
12-14 December 2023**



**IEEE Catalog Number: CFP23EDP-POD
ISBN: 979-8-3503-8377-5**

**Copyright © 2023 by the Institute of Electrical and Electronics Engineers, Inc.
All Rights Reserved**

Copyright and Reprint Permissions: Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

****** This is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.***

IEEE Catalog Number:	CFP23EDP-POD
ISBN (Print-On-Demand):	979-8-3503-8377-5
ISBN (Online):	979-8-3503-8376-8
ISSN:	2151-1225

Additional Copies of This Publication Are Available From:

Curran Associates, Inc
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: (845) 758-0400
Fax: (845) 758-2633
E-mail: curran@proceedings.com
Web: www.proceedings.com

CURRAN ASSOCIATES INC.
proceedings
.com

TABLE OF CONTENTS

Time Domain Partial Elements: A New Paradigm for Improved PEEC Models	1
<i>Fabrizio Loreto, Daniele Romano, Giulio Antonini, Martin Stumpf, Albert E. Ruehli, Jonas Ekman</i>	
Modeling and Analysis of Load Balancing and Demand Response in Renewable Energy Infrastructures.....	4
<i>Anshu Prakash Murdan</i>	
Packaged Cost-Effective Millimeterwave Air-Filled SIW Components for Array Feed Networks.....	7
<i>Laura Van Messeem, Arno Moerman, Olivier Caytan, Dries Vande Ginste, Hendrik Rogier, Sam Lemey</i>	
Signal Integrity Analysis of High-Speed PCIe Channel with Board-to-Board Interconnect for High-Performance Server	10
<i>Seongguk Kim, Keeyoung Son, Jiwon Yoon, Taein Shin, Keunwoo Kim, Boogyo Sim, Joonsang Park, Seonguk Cho, Jihun Kim, Haeyeon Kim, Jounggho Kim, Hyunwook Park</i>	
Thermal Analysis of High Bandwidth Memory (HBM)-GPU Module Considering Power Consumption	13
<i>Keeyoung Son, Joonsang Park, Seongguk Kim, Boogyo Sim, Keunwoo Kim, Seonguk Choi, Hyunsik Kim, Jounggho Kim</i>	
An Automatic Channel Test Scheme for Multi-Chip Stacked Package with Inductively Coupled Interconnection.....	16
<i>Yang Cui, Zhuo Yang, Jie Xiong, Wenwen Cai, Hao Gao, Wei Zou, Li Zhang</i>	
Simulation Vs Measurement: Comparing PCB Design Simulations Data with the Board Measured Data, Importance of the Modeling Accuracy for Better Corelation at Multi GHz Frequencies	19
<i>Rajesh Badala Jagadeesh, Venkatesh Ramashastry, Bharath Ramprasad, Surya Prakash Rao Bengaluru Srihari, Pavan Gulur Srinivas</i>	
Comparison of Surrogate Modeling Approaches for Estimation of EMI Filter Insertion Loss	22
<i>Ayush Shukla, Suguna Sree Nukala, Akash, Dhiraj Kumar Singh, Dipanjan Gope, Jan Hansen</i>	
Fixture De-Embedding Challenges for Short 2xThru Structure	25
<i>S. Oniani, G. Tsiklauri, G. Tsintsadze, N. Dikhaminjia, R. Zai, J. Drewniak, M. Tsiklauri</i>	
137–150 GHz Magnetically Tuned Frequency Generator for 6G Wireless Communication	28
<i>Guoqing Dong, Yifan Ding, Yizhu Shen, Sanming Hu</i>	
A Semi-Analytical Approach for Variability-Aware Jitter Estimation.....	31
<i>Bhavani Sankar Challa, Jai Narayan Tripathi, Ramachandra Achar</i>	
A Two-Level Waveform Relaxation Approach for System-Level Power Delivery Verification	34
<i>Alessandro Moglia, Antonio Carlucci, Stefano Grivet-Talocia, Scott Mongrain, Sid Kulasekaran, Kaladhar Radhakrishnan</i>	
A Stochastic Active Learning Strategy for Gaussian Process Models with Application to the Uncertainty Quantification of Signal Integrity	37
<i>Paolo Manfredi</i>	

Optimization of Eye Diagram Characteristics of MLGNR Interconnect Networks Using Fast ML Assisted Evolutionary Algorithm	40
<i>Km Dimple, M. Ehteshamuddin, Surila Guglani, Avirup Dasgupta, Sourajeet Roy, Brajesh Kumar Kaushik</i>	
Space Mapped Neuromodeling for Fast & Accurate Signal Integrity Analysis of Rough On-Chip Copper Interconnects	43
<i>Suyash Kushwaha, Surila Guglani, Nastaran Soleimani, Sunil Pathania, Somesh Kumar, Riccardo Trincherro, Sourajeet Roy, Rohit Sharma</i>	
Multi-Objective EMI Optimisation Using a Metamodel-based SiC/GaN Converter and NSGA II	46
<i>Jason Gomez, Akash, Suguna Sree Nukala, Dipanjan Gope, Jan Hansen</i>	
Noise-Aware Uncertainty Quantification of MLGNR Interconnects Using Fast Trained Artificial Neural Networks.....	49
<i>Asha Kumari Jakhar, Surila Guglani, Avirup Dasgupta, Sourajeet Roy</i>	
Time Delay Compensation to Improve the Transient Response of Fully Integrated Voltage Regulators in Microprocessors	52
<i>Amit Kumar, Srinivasan Govindan, Srikrishnan Venkataraman, Christopher Schaefer, Nikhil Seshasayee</i>	
A Low-Cost Design for Non-Standard LIN Signal Generator Based on Transistors.....	55
<i>Song Ping Yang, Lan Chen, Mei Song Tong</i>	
Indoor Localization of User Equipment in a 5G Ecosystem Using a Hybrid Approach	58
<i>Mohammad Farhaan Jeelany Aunowar, Vandana Bassoo</i>	
Power Integrity Design of Mobile 3D-IC Based on the Allocation of Optimal Number of TSV, BGA, and Via	61
<i>Hyunwoong Kim, Seonghi Lee, Dongryul Park, Jungil Son, Yongho Lee, Sungwook Moon, Jiseong Kim, Seungyoung Ahn</i>	
The Significance of Thermal-Aware Universal Chiplet Interconnect Express (UCIe) Interface Design in 2.5D/3D ICs	64
<i>Keyoung Son, Keunwoo Kim, Seonguk Choi, Jiwon Yoon, Jihun Kim, Jonghyun Hong, Hyunwoo Kim, Junghyun Lee, Joungho Kim</i>	
Effects of Generator Order and Excitation Systems on Voltage Control	67
<i>Naadia Hanaan Fokeerbux, Rajeshree Ramjug-Ballgobin</i>	
Energy Efficiency of 5G Massive MIMO Base Stations in Dense Urban Environments.....	70
<i>Bhuvaneshwar Doorgakant, Tulsi Pawan Fowdur</i>	
Evaluation of Efficiency and Power Quality for a Two-Phase Asymmetrical Induction Motor Drive.....	73
<i>Mohamed Iqbal Jahmeerbacus, Anshu Prakash Murdan</i>	
Bulk Current Injection (BCI) Simulation and Measurement Correlation of an Automotive Battery Cell Voltages and Temperature Monitor IC	76
<i>Jie Chen, Rajen Murugan, Vishnu Ravinuthula, Willy Bristiel, Taylor Vogt, Chienyu Huang, Bibhu Nayak, Joe Sivaswamy, Harikiran Muniganti, Dipanjan Gope</i>	
Adaptation of Interconnection Policy for DGs to Increase Renewable Energy Integration in Mauritius	79
<i>Noormahmad Goolam Hossen, Robert T. F. Ah King</i>	

Driving Assistance System at T-Junctions in Mauritius Using V2V Communication.....	82
<i>Bhimsen Rajkumarsingh, Maneesh Luchmun</i>	
Minimum Cursors Selection in Statistical Method for Eye Diagram Simulation in a High-Speed Link Nonlinear System.....	85
<i>Bobi Shi, Jose E. Schutt-Aine</i>	
3D-IC Power Distribution Network (PDN) Impedance Prediction Using Deep Learning (DL).....	88
<i>Dongryul Park, Seunghun Ryu, Hyunwoong Kim, Seonghi Lee, Sangsub Song, Seokbeom Yong, Seungyoung Ahn</i>	
Signal & Power Integrity Analysis and Solutions for HBM Gen3	91
<i>Mukesh Moorthy, Hisham Abed</i>	
Imitation Learning-Based Equalizer Design Optimization Method on PCIe 6.0	94
<i>Jihun Kim, Seonguk Choi, Taein Shin, Keeyoung Son, Boogyo Sim, Seongguk Kim, Haeyeon Kim, Joonsang Park, Jinwook Song, Kyungsuk Kim, Jonggyu Park, Joungho Kim</i>	
Signal Integrity Design and Analysis of Universal Chiplet Interconnect Express (UCIe) Channel in Silicon Interposer for Advanced Package.....	97
<i>Taein Shin, Keunwoo Kim, Hyunwook Park, Boogyo Sim, Seongguk Kim, Jihun Kim, Seonguk Choi, Joonsang Park, Jinwook Song, Jaehyup Kim, Joung Won Park, Daehyun Kang, Joungho Kim</i>	
Temperature-Dependent MRTD Model for Transient Analysis of Coaxial-TGVs in 3D ICs.....	100
<i>K. Madhu Kiran, Rohit Dhiman</i>	
Analytical Time-Domain Models for the Analysis of Tapered Differential Multibit TGVs for 3D ICs	103
<i>Ajay Kumar, Rohit Dhiman</i>	
Design and Implementation of a Low-Cost Automatic Cardiopulmonary Resuscitation (CPR) System	106
<i>Nihal Toolsee, Mahendra Gooroochurn</i>	
Design and Implementation of an Autonomous Mobile Robot for Fabric Fluff Collection	109
<i>Guru-Abhivaysh Seesurun, Mahendra Gooroochurn</i>	
EMI Performance of Multilayered Al-CoTaZr Films in Shielded Power Inductors	112
<i>Ghaleb Saleh Ghaleb Al-Duhni, Mudit Khasgiwala, John L. Volakis, Pulugurtha Markondeya Raj</i>	

Author Index