

2025 International Workshop on Advanced Interconnects (WAI 2025)

**Ningbo, China
5-7 November 2025**

IEEE Catalog Number: CFP259A5-POD
ISBN: 979-8-3315-9346-9



Copyright © 2025, IEEE

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:	CFP259A5-POD
ISBN (Print-On-Demand):	979-8-3315-9346-9
ISBN (Online):	979-8-3315-9345-2

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

TABLE OF CONTENTS

An Equation Based Solver for High-Speed Differential Pairs Affected by Fiber-weave effect	1
<i>Kai Li, Dongxu Fu, Yan Li, Xiao-Ding Cai, Bidyut Sen</i>	
A Hierarchical Optimization and Learning Framework for Broadband MLCC Equivalent-Circuit Modeling	4
<i>Yongjie Chen, Zhou Jin, Cheng Zhuo</i>	
An Efficient 2D/3D Mesh-Coupled Electro-Thermal Co-Simulation Method for Large-Scale Integrated Millimeter-Wave Phased Arrays	7
<i>Xinhong Xie, Zixian Ma, Haotian Chen, Hangkai Zhang, Gaofeng Cai, Yin Sun, Bo Pu, Nayu Li</i> <i>Chunyi Song, Zhiwei Xu</i>	
A Broadband Miniature TEM Cell for IC EMC Measurement over 8 GHz	10
<i>Chenghao Lan, Yusheng Hu, Yaoquan Ou</i>	
Computational Modeling of a Microstrip Antenna and Measurements with a Nano VNA	13
<i>Kenedy Marconi G. Santos, Lucas S. Ribeiro, Marcelo B. Perotoni, José Alberto D. Amado</i> <i>Crescencio L. R. Neto, Tagleorge M. Silveira</i>	
Application of Optimization Algorithms in Channel Signal Integrity Design	16
<i>Qihang Shang, Wenzhi Wang, Yade Fang, Yanwu Wang, Yi Chen</i>	
Comparative Study of Delay Extraction Methods of Long SFP+ High Speed Cables for Signal Integrity Applications	19
<i>John Xiao, Jun Fan, Jingkun Mao</i>	
PCB Stack-Up Recognition Using LLMs	22
<i>Jie Li, Shiming Qin, Tingting Liu, Yuyu Zhu, Haoran Li, Cailiang Fu</i>	
Novel Methodology for Electrical Performance Characterization of High-Speed Raw Cables Under Thermal Stress	25
<i>Jimmy Hsu, Huafang Ju, Ryan Chang</i>	
Calibration of simple transient electric field probe and circuit-based waveform reconstruction	28
<i>Guangxiao Luo, Yizhe Zhang, Yuhang He</i>	
CPW Antenna for Satellite Earth Mapping and Radiolocation Systems	31
<i>Marcelo B. Perotoni, Tagleorge M. Silveira, Kenedy Marconi G. Santos, José Alberto D. Amado</i> <i>Crescencio Lima, Lucas S. Ribeiro</i>	
Simulation and Test of 112Gbps SerDes Power Noise	34
<i>Lingyun Liu, Jianguo Zhang, Bin Yu, Shuangman Xie, Erling Pan, Zhijun Long</i>	
Exploration of the Relationship Between Copper Foil Microstructure and Etching Behavior on PCB Signal Integrity	37
<i>C. Gu, Dayong Shen, H. Luo, J.F. Pan</i>	
Overestimation of Inductance in PDN Modeling: A Study on MLCC Models	40
<i>Cailiang Fu, Anfeng Huang, Yin Sun, Guozheng Zhang, Jie Li, Junfeng Luo</i>	

Attention-Guided Reinforcement–Genetic Optimizer: Fast PDN Impedance Prediction and Decoupling Capacitor Design for Power Integrity	43
<i>Qiyu Jiang, Shufang Li</i>	
Dual Wideband Metasurface Based Linear to Circular Polarizer for Transmission Mode	46
<i>Fatima Ghulam Kakepoto, Hajra Khan, Farman Ali Mangi, Syed Muzahir Abbas</i>	
Spiral Blade-Inspired Polarization-Insensitive X-band FSS for EMI Shielding Applications	49
<i>Saad Hassan Kiani, Altaf Ahmed Mugheri, Muhammad Ikram, Umair Rafique, Imran Mohd Ibrahim Syed Muzahir Abbas</i>	
Multi-Objective Decap Optimization Based on Non-Dominated Sorting Genetic Algorithm	52
<i>Keyi Ding, Ling Zhang, Li Jiang, Junjie Ren, Er-Ping Li</i>	
DNN-Based Prediction of Frequency-Dependent RLGC Parameters for Transmission Lines	55
<i>Jiaqi He, Rongyao Tang, Kuan Zhang, Mengyao Ai, Xiaohe Chen, Xiuqin Chu, Jun Fan, Bo Pu</i>	
Addressing the Radio Frequency Interference Problem Through Characteristic Mode Analysis	58
<i>Xu Wang, Xiaoping Li, Xinglin Sun, Tingting Liu, Shiming Qin</i>	
Delay Matters: Enhancing S-Parameter Macromodeling Accuracy	61
<i>Chenxi Liu, Qi Liu, Yajun Chen, Yi Chen, Yanwu Wang, Zhifei Xu</i>	
Design Challenges and Optimization Strategies for High-Speed Connector Test Fixtures	64
<i>Qingfeng Lin, Dao Lin, Lei Deng, Yihong Qi</i>	
Connectors for 400 Gbps-per-Lane Links: Challenges and Design Directions	66
<i>Lei Deng, Yinzhu Tang, Chaoqiang Zang, Yihong Qi</i>	
Twinax Cables at 448 Gb/s: Challenges and Solutions	69
<i>Yuming Zheng, Lei Deng, Yuping Tan, Yihong Qi</i>	
Implementation of an Adaptive DFE Algorithm	72
<i>Wenbo Zhang, Tingting Liu, Yang Liu, Xuanyu Wang, Siyuan Li, Sichao Guo, Xiaozhe Han, Yaqi Li Yiqiong Pang, Ying Zhu</i>	
An Integrated Simulation Software for Component EMC Design and Analysis	75
<i>Jianhao Ge, Zhaowen Yan, Tengfei Gao, Zeyu Han, Jingqi Lu, Yifan Zhen</i>	
Research on Physical Layer Signal Automated Testing Technology for Non-standard Hardware Products	78
<i>Chuangye Guo, Yuxu Huo, Chaoyu La, Tingting Liu</i>	
Analysis of the Influence of Three - proof Coating on the High - speed Signal Transmission Performance of Embedded Computers	81
<i>Zichun Zhang, Tingting Liu, Yuxu Huo, Chuangye Guo</i>	
Integrated Coaxial Resonator for Reconfigurable Passive Intermodulation Testing	84
<i>Min Liang, Xiong Chen, Bin Han</i>	
Research on GMSL Testing Technology in Multi-Physical Field Environments	87
<i>Yuxu Huo, Zichun Zhang, Chuangye Guo, Tingting Liu</i>	
S-Band Tunable Impedance Matching Network with Varactor Diodes	90
<i>Zhou Han, Xiong Chen, Bin Han</i>	

2.4 GHz Wideband Tunable Impedance Matching Network	93
<i>Bin Han, Xiong Chen, Zhou Han</i>	
Modeling Capacitive-Loaded Unintentional Stubs in High-Speed Channels	96
<i>Nicolò Vicari, Rick Rabinovich, Samuel Kocsis, Kevin Mammenga, Gang Zhang, Carlo Olivieri</i>	
<i>Francesco de Paulis</i>	
Design and Analysis of Perforated Ground Plane for Mode Conversion Mitigation in High-Speed Differential Channel of Die-To-Die Interface	99
<i>Hyunwoo Kim, Seunghun Ryu, Sanguk Lee, Seonghi Lee, Dongryul Park, Jinwook Lee, Seungyoung Ahn</i>	
Magnetic and Electric Shielding Effectiveness Measurement of System-In-Package	102
<i>Di Wang, Xing-Chang Wei, Ming-Jie Pang</i>	
Recent Advances in YIG-based Frequency Selective Limiters	105
<i>Si-Ping Gao, Zequn Zeng</i>	
Physics-Constrained Differential Evolution for Continuous Decoupling Capacitor Placement and Orientation Optimization	108
<i>Li Jiang, Ling Zhang, Junjie Ren, Keyi Ding, Er-Ping Li</i>	
Research on the Influence of Signal Integrity of the Test Board on the CAN Transceivers Electromagnetic Interference Test	111
<i>Qi Li, Ying Liu, Lili Lei</i>	