2025 IEEE INTERNATIONAL SYMPOSIUM ON ELECTROMAGNETIC COMPATIBILITY, SIGNAL & POWER INTEGRITY

RETURNING TO THE IEEE EMC+SIPI 2025 SYMPOSIUM IN RALEIGH, NORTH CAROLINA!



2ND GLOBAL SIGNAL INTEGRITY AND POWER INTEGRITY (SIPI) UNIVERSITY

TUESDAY-THURSDAY, AUGUST 19-21, 2025

The Organizing Committee of the 2025 IEEE International Symposium on Electromagnetic Compatibility and Signal & Power Integrity (EMC+SIPI) is planning to offer a high-quality educational event encompassing Signal Integrity (SI) and Power Integrity (PI).

Similar to the Clayton R. Paul Global EMC University that is held annually during the International Symposium, the intent is to offer two full days of lectures carefully curated to cover basic and advanced concepts of SI & PI during the symposium week. SI & PI are gaining ever-growing attention due to the higher data rates and larger currents in modern high-speed digital systems. Industry requires skilled engineers with a background in these two disciplines to address the increasing complexity and challenges of electronic system design.

The IEEE EMC Society therefore decided to offer – after its introduction in 2024 at the Symposium in Phoenix, Arizona – two full days of courses during the EMC + SIPI Symposium 2025 to bridge this gap. The mission of the Global SIPI University will be to give students, technicians, and engineers the opportunity to acquire SI & PI skills directly from experienced and well-known instructors from both industry and academia.

This year the program extends to 2 days to offer both lectures and practical demonstrations. The intent is to expand the discussion on the background concepts and to provide a more detailed presentation of advanced methods for achieving the current design challenges. Moreover, the demos will encompass the use of instruments typically employed for analysis, measurement and troubleshooting for the signal and power integrity.

CHAIR: Christian Schuster
Hamburg University of Technology, Germany



Christian Schuster (IEEE Fellow) received a Diploma degree in physics in 1996 and a Ph. D. degree in electrical engineering in 2000. Since 2006 he is a full professor at Hamburg University of Technology (TUHH), Germany. Prior to TUHH he was with the IBM T. J. Watson Research Center, Yorktown Heights, NY. His interests include signal and power integrity of digital systems, multiport measurement and calibration techniques, and development of physics-based as well as data-based modeling, simulation and optimization methods for EMC+SIPI. In the recent past, he has served as an Associate Editor for the IEEE Transactions on EMC as well as an Adjunct Associate Professor at the School of Electrical and Computer Engineering of the Georgia Institute of Technology. Currently, he is serving as President of the NIT Northern School of Technology Management at TUHH.

CO-CHAIR: Francesco de Paulis
University of L'Aquila, L'Aquila, Italy



Francesco de Paulis (Senior Member IEEE) received the M.S. degree in Electrical Engineering in May 2008 from Missouri University of Science and Technology (formerly University of Missouri-Rolla), USA, and the Ph.D. degree in Electrical and Information Engineering in 2012 from the University of L'Aquila, L'Aquila, Italy. He is currently an Associate Professor at the Electromagnetic Compatibility and Signal Integrity Laboratory at the University of L'Aquila. His main research interests are in signal and power integrity, high speed channel design and optimization, composite materials for shielding and absorption, RF interference in mixed-signal system, TSVs in silicon chips and interposers, antenna design and measurement techniques, remote fault detection in transmission lines, microwave design of electronic devices and systems for space applications.

Please view the instructor biographies available on the Symposium website www.emc2025.org/global-sipi-university

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RALEIGH, NC EMC+SIPI 2025

2025 IEEE INTERNATIONAL SYMPOSIUM ON ELECTROMAGNETIC COMPATIBILITY, SIGNAL & POWER INTEGRITY

TUESDAY (AFTERNOON) 1:00PM – 5:00PM AUGUST 19, 2025

TIME	TOPIC	PRESENTER
1:00pm – 1:30pm	**Registration / Introduction**	
1:30pm – 2:15pm	**Opening**	**Stephen Scearce (Cisco)**
2:15pm – 3:00pm	**Introduction to SI and PI** Evolution from the Basics to the Current Technology	**Francesco de Paulis (Univ. L'Aquila)**
3:30pm – 4:15pm	**Signal Integrity I:** Transmission line effects, lumped effects, passive interconnect design, terminations and reflections	**John Golding (Siemens)**
4:15pm – 5:00pm	**Signal Integrity II:** Crosstalk, vias, dielectric and conductive losses, surface roughness	**Bhyrav Mutnury (AMD)**

WEDNESDAY (FULL DAY) 8:00AM – 5:00PM AUGUST 20, 2025

TIME	TOPIC	PRESENTER
8:30am – 9:15am	**Signal Integrity III:** Stack-up design, connectors, modulation and coding, equalization	**Brandon Gore (Samtec, Columbia SC)**
9:15am – 10:00am	**Signal Integrity IV:** Measurements for Signal Integrity (VNA and TDR)	**Matteo Cocchini (IBM)**
10:30am – 11:15am	**Keynote:** How useful is Machine Learning for Signal & Power Integrity Design?	**Madhavan Swaminathan (Penn State Univ.)**
11:15am – 12:00am	**Signal integrity Demo I:** Time Domain – Scope measurements of the impact of transmission line effects and reflections demonstrating ringing noise, time of flight and eye diagrams.	**Eric Bogatin (Univ. Colorado)**
1:30pm – 2:15pm	**Signal Integrity V:** Simulation and modeling for signal integrity (3D, cross-section analysis, circuit modeling)	**Roni Khazaka (McGill Univ., Montreal)**
2:15pm – 3:00pm	**Signal Integrity Demo II:** Frequency Domain - VNA (channel analysis, calibration, de-embedding)	**Paul Peterson (R&S)**
3:30pm – 4:15pm	**Power Integrity I:** PDN structure, IR-drop, decoupling capacitors, PDN design and optimization, low impedance measurements for PDN	**Chulsoon Hwang (MS&T)**
4:15pm – 5:00pm	**Power Integrity II:** VRM design and modeling, PCB/package modeling of PDN	**Hanfeng Wang (Google)**

THURSDAY (MORNING) 8:00AM – 12:00PM AUGUST 21, 2025

TIME	TOPIC	PRESENTER
8:30am – 9:15am	**Power Integrity III:** Package and IC PDN, on-chip VRM	**Zhiphing Yang (PCB Automation Inc.)**
9:15am – 10:00am	**Hot Topic:** Engineering the Mind of Machines: Electrical Design Trends in Gen AI Processing	**Jayaprakash Balachandran (d-Matrix)**
10:30am – 11:15am	**Power Integrity Demo:** Low impedance measurements of decaps and PDN, measurements of PDN noise on active circuit	**Benjamin Dannan (Signal Edge Solutions)**
11:15am – 12:00am	**Closing Session:** Compact and Surrogate Models in SI/PI	**Stefano Grivet-Talocia (PoliTo)**

View Presenter Bios: www.emc2025.org/global-sipi-university

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