

3D-PEIM 2023 Preliminary Program

Day 1 - Wednesday February 1, 2023		
Description/Title	Presenter	Affiliation
S1: Plenary I : Design for Power		
<i>Finite-Element Predictive Modeling for Power Modules</i>	<i>Dr. Brandon Passmore</i>	<i>Wolfspeed</i>
<i>Integrated Power Delivery for AI Computing: Technology Gaps & Opportunities</i>	<i>Prof. Madhavan Swaminathan</i>	<i>Georgia Tech.</i>
Break		
S2: IVR for Computers and Servers		
<i>Session Chair</i>	Siddharth Ravichandran	Chiptetz
<i>Keynote: Practical challenges with advanced IVR solutions for microprocessors</i>	Michael J. Hill	Intel
3D Power Delivery for High Performance Processors	Noah Sturcken	Ferric, Inc
Topology and Magnetics Co-Investigation for 48V-1V Point-of-Load VRM (invited & submitted paper)	Minjie Chen, Jose Cobos, Brad Lehman	Princeton University
Inductor-Linked Multi-Output Chiptez Power Delivery Architecture	Minjie Chen, Ping Wang, Mian Liao	Princeton University
Lunch		
S3: Multiphysics Design & Tools		
<i>Session Chair</i>	Rajen Murugan	Texas Instruments
<i>Keynote: Machine-learning-based optimization: the future of power package design</i>	Vanessa Smet	Georgia Tech.
<i>Keynote: Multiphysics System Co-Design Modeling: State-of-the-Art, Challenges, and Opportunities</i>	Rajen Murugan	Texas Instruments
<i>New Challenges in Transportation Electrification, Powertrain Drives & New Power Electronics Architectures</i>	Osama Muhammed	Florida International University
<i>Performance Analysis of Thin- and Thick-Film Graphene-Based EMI Shields in Integrated Power Modules</i>	Ghaleb Al Duhni, John Volakis, Markondeyaraj Pulugurtha	Florida International University
<i>Reliability Analysis of Wireless Power Transfer for Electric Vehicle Charging Based on Continuous Markov Process</i>	Milad Behnamfar, Md Abu Taher, Alexis Polowsky, Sukanta Roy, Arif Sarwat	Florida International University
Break		
S4: Additive Manufacturing		
<i>Session Chair</i>	Peter Friedrichs	Infineon Technologies
<i>Keynote: Unlocking New Design Frontiers for Power Density and Specific Power Using Heterogenous Packaging, Embedded Cooling, and 3D Printed PCBs</i>	Thomas Foulkes	Pacergy
Additive deposition technologies: from 2D towards 3D electronic systems	M. Wiemer	Fraunhofer Institute, Germany
Additive manufacturing of high performance pure copper components with PureForm™ for thermal and electrical applications	Arian Aghababaie	Holo, Inc.
S5: Manufacturing Technologies		
<i>Session Chair</i>	Jason Rouse	Taiyo America
<i>Keynote; Insights from Microelectronic Packaging for Power Packaging Advancement</i>	Matt Kelly	IPC
<i>To be Announced</i>	Bill Chen	ASE
Enabling Increased Aluminum Utilization within Power Electronic Packaging	Divyakant P Kadiwala	Averatek
Reticular Graphene Reinforced Copper for Low-Stress Thermal Management Application	Cheng Zhang, Markondeyaraj Pulugurtha	Florida International University
WELCOME RECEPTION		
Day 2 - Thursday February 2, 2023		
Description/Title	Presenter	Affiliation
S6: Plenary II: Improved Electrical Performance for Power		
<i>PCB based Integrated Magnetics</i>	<i>Prof. Fred C. Lee</i>	<i>Virginia Tech.</i>
<i>Future of Packaging and the Role of Power Integration</i>	<i>Prof. Rao R. Tummala</i>	<i>3D Electronic Systems Packaging Research Center</i>
Break		
S7: Materials I Interconnects & Lead Attachments		
<i>Session Chair</i>	Andy Mackie	Indium Corporation
<i>Keynote: Roadmap for Copper Sintering - Next Interconnect for Power Electronic Module Packaging</i>	Gordon Elger	Fraunhofer Application Center
<i>Keynote: Die Top System: Advanced interconnect for Power Electronics Module Packaging</i>	Habib Mustain	Heraeus
<i>Rapid Development of Electrically Conductive Materials for Additive Manufacturing Feasibility and Applications</i>	Gilad Nave, Patrick McCluskey	University of Maryland
Lunch with Posters		

Day 2 - Thursday February 2, 2023 continued		
Description/Title	Presenter	Affiliation
S8: Materials II Substrates & Encapsulants		
<i>Session Chair</i>	Ninad Shahane	Texas Instruments
Keynote: A Polymer-Nanoparticle Composite for Nonlinear Resistive Field-Grading in Medium-Voltage Power Modules	G. Q. Lu	Virginia Tech.
New Substrate Technology for Power Applications	Neda Ameli	Rogers Corporation
Break		
S9: Module Integration		
<i>Session Chair</i>	Cyril Buttay	Laboratoire Ampère
US Navy Power Electronics needs	L. J. Petersen	US Navy
Towards next generation power module package technology blooming	S. Idaka	Mitsubishi Electric R&D Centre Europe
An intelligent power module	Julien Morand, Johan Le Lesle	Mitsubishi Electric R&D Centre Europe
WAVELET-Based Parameter Estimation of High Voltage Impulse Signals	Emel Onal	Istanbul Technical University
NMOS/NLDMOS LSS dead-Time Minority Carrier Isolation Optimization	Gang Liu, Olivier Causse	onsemi
Autonomous Mobility for Wireless Charging Applications	Syed Abdur Rahman Tahir, Hussein Mahdi, Bjørn Solvang, Bjarte Hoff	UIT The Arctic University of Norway
S11: Thermal Management and Reliability		
<i>Session Chair</i>	Patrick McCluskey	University of Maryland
Keynote: integrated thermal management in power electronics and motors	Satish Kumar	Georgia Tech.
Power Electronics Thermal Design with Carbide Nanotubes for Reliability and Cost Saving	Craig Green	Carbice Corporation
Inverter/converter power density and flexibility improvements through modularity and novel thermal management architecture	Ian Byers	Marel Power Solutions, Inc.
S10: Partners Session		
BANQUET DINNER		
Day 3 - Friday February 3, 2023		
Description/Title	Presenter	Affiliation
S14: Plenary III: Improved Electrical Performance for Power		
Superior heat dissipation by low pressure Ag sinter joining and real time AI lifetime prediction for SiC power module	Prof. Katsuaki Suganuma	University of Osaka, Japan
Emerging Power electronics packaging and system integration for automotive applications	Dr. Mahadevan Iyer	Amkor
Break		
S12: Passive Component Integration		
<i>Session Chair</i>	John Bultitude	KEMET Electronics Corporation
Keynote: Enabling Sustainable Power Electronics Through Miniaturization and Integration of Power Magnetics	Matt Wilkowski	Enachip
Application of Circuit Board Technology for Passives Packaging	B. K. Summey	KEMET Electronics Corporation
High-density nanoporous silicon decoupling capacitors	Mohamed Jatlaoui	Murata Integrated Passive Solutions, France
Cold-sprayed aluminum capacitors for 3D power packaging	Reshmi Banerjee, Denny John, Cheng Zhang, Arvind Agarwal, P. Markondeya Raj	Florida International University
Class I Multi-Layer Ceramic Capacitors (MLCCs) Performance As Wide Band Gap (WBG) Snubbers for Hard Switching Applications	Allen Templeton, Nathan Reed, Hunter Hayes, James Davis, John Bultitude	KEMET Electronics Corporation
Lunch		
S13: Low Power & Telemetry		
<i>Session Chair</i>	Girish Wable	Jabil
Keynote: eSiP (energy source in package) - 3D packaging considerations for self-powered IoT edge devices	Mike Hayes	Tyndall National Institute, Ireland
Magnetolectric Nanoparticles As a Wireless Brain-Machine Interface	Sakhrat Khizoev	University of Miami
Laminate-Embedded Multimodal Energy Harvester for Multilevel Power Supply	Jorge A. Caripidis Troccola, Sweta Gupta	Florida International University
Break		
S15: LABORATORY TOUR - Florida International University		