3D-PEIM 2018 Program

Monday June 25, 2018 8:00 -12:15	**Tutorials** • **"Additive Manufacturing"** Dr. Christopher Williams, Virginia Tech (DREAMS Lab) • **"System Integration"** Prof. Douglas Hopkins, NCSU (NSF FREEDOM LAB) • **"Integrated Thermal Packaging"** Dr. Michael Ohadi, U. of MD
12:15 - 1:15	**Lunch – Tutorial AttendeesOnly & Networking**
1:15 – 1:25	**Opening Remarks by Symposium General Chair Prof. Patrick McCluskey (U. of MD)**
1:25 – 2:45	**SK Symposium Keynote – Chair: Prof. Guo-Quan Lu, Virginia Tech** • "**Small Quiet Robust and Affordable: Delivering the Integration Promise"** Prof. Mark Johnson, U. of Nottingham, UK • **"Embedding Technologies for Planar Power Electronics Modules"** Dr. Rolf Aschenbrenner, Fraunhofer Institute, Berlin, Germany
2:45 – 3:15	**Break & Network (Photo)**
3:15 – 5:00	**S1 Additive Manufacturing - Chairs: Dimeji Ibitayo (ARL) and Ryan Sochol (U. of MD)** • **Keynote: "TBD"** Dimeji Ibitayo, ARL • **Invited: "Additive Manufacturing Methods and Materials Requirements for the Fabrication of 3D Printed Hybrid Electronic Circuits"** Daniel Hines. U. of MD (LPS) • **Invited: "Additive Manufacturing in Power Module Development"** Lauren Boteler, ARL • **Invited: "Additive Manufacturing of Power Magnetics"** Prof. Guo-Quan Lu, Virginia Tech,
5:00 – 7:00	**Welcome Reception & Vendor Exhibits**
Tuesday June 26, 2018 8:00 – 9:45	**S2 Systems Integration & Thermal Management - Chairs: Lauren Boteler (ARL) and Mike Ohadi (U. of MD)** • **Keynote: "Heterogeneous Integration Roadmap Update- Integrated Power Electronics"** by Prof. Douglas Hopkins, NCSU (NSF FREEDOM LAB) • **Invited: "Package Configuration and Thermal Analysis of Enhanced Durability Power Electronic Packages"** Dr. Darshan Pahinkar, Georgia Tech • **Invited: "Thermal Management and Packaging of High Temperature Automotive Power Electronics"** Gilbert Moreno, NREL • **"Design of SiC Power Modules Integrated with Metal Foam and Phase Change Material for Pulsed Load Applications"** W. Shao, L. Ran, Z. Zeng, and P. Mawby, Chongqing University, China
9:45 – 10:15	**Break & Networking**
10:15 – 12:00	**S3 Multiphysics Design and Tools - Chairs: Abhijit Dasgupta (U. of MD) and Steven Miner (Naval Academy)** • **Keynote: "Reduced Order CoDesign Analysis for Design Space Evaluation of Power Electronic Modules"** Lauren Boteler, ARL • **Invited: "Thermal Models of Multilayer Ceramic Capacitors for 3-D Power Electronics"** Allen Templeton, KEMET • **Invited: "Applications of COOLCAD to Power Electronics"** Neil Goldsman, U. of MD; • **Invited: "Reliability Modeling Software for Electronic Systems"** Mike Osterman, U. of MD (CALCE)
12:00 – 1:00	**Lunch & Networking**
1:00 – 2:45	**S4 Materials – Chairs: John Bultitude (Kemet) and Yunhui (Joe) Mei (Tianjin University)** • **Keynote: "New bonding Cu ink by using low temperature sinterable Cu particles"** Dr. Jung-Lae Jo, Mitsui Mining & Smelting Co, Ltd • **Invited: "One-Step Fabrication of 3D Nanohierarchical Nickel Nanomace Array To Sinter with Silver NPs and the Interfacial"** Prof. Wang Chunqing, Harbin Institute of Technology, China, • **Invited: "Soft magnetic Metal-flake Composite Material Suitable for Highly Integrated Power Modules"** Kenichi Chatani, Tokin a KEMET company • **Invited: "The Development of Materials for 3D Packaging of Power Products"** Mr. Ken Araujo, Namics USA
2:45 – 3:15	**Break & Networking**
3:15 – 5:00	**S5 Manufacturing Technologies - Chairs: William Chen (ASE) and Brian Narveson (Narveson Innovative Consulting)** • **Keynote: "TBD",** Dr. William Chen, ASE • **Invited: "Advanced PCB Solutions Supporting Next Generation Power Applications"** David Warner, AT&S • **Invited: "High Reliability Silver Sintering for Power Modules"** Gyan Dutt , Alpha Assembly Solutions • **Invited:), "Vacuum-assisted Sintering in Mass Production: Challenges and Solutions"** Aaron Hutzler, PINK GmbH • **"Improvement of Ag Sintering Quality on Cu Surface at Hydrogen Atmosphere"** Testu Takemasa, Minoru Ueshima, Jinting Jiu, Seino Junko, Katsuaki Suganuma, Osaka Univ.
5:00 – 7:00	**Networking Reception, poster session, vendor exhibits, with dinner buffet at 6:00**
Wednesday June 27, 2018 8:00 – 9:45	**S6 Embedding Technologies-Chairs: Khai Ngo (Virginia Tech) and Brandon Passmore (Wolfspeed)** • **Keynote: "SiC Power Electronics Systems With High Level of Mechatronic Integration for Automotive and Aircraft Application"** Dr. Maximilian Hofmann, Fraunhofer IISB • **Invited: "Application of the PCB-Embedding Technology in Power Electronics - State of the Art and Proposed Development"** Dr. Cyril Buttay, Centre National de la Recherche Scientifique (Ampere Lab) • **Invited "Thick-film Embedded Passives for Power Modules"** John Fraley, Wolfspeed • **Invited "130 MHz 6A Embedded Voltage Regulator in Cubic Millimeter"** Dr. Taner Dosluoglo, Endura
9:45 – 10:15	**Break & Networking**
10:15 – 12:00	**S7: Heterogeneous Integration of Components - Chairs: Matt Romig (Texas Instruments) and Pulugurtha Markondey Raj (GA Tech)** • **Keynote: "Heterogeneous Integration Progress and Trends in Miniature Integrated Power Supplies"** Arnold Alderman, Anagenesis • **Invited: "Integration of Energy Storage into Power Module by Magnetic Molding"** Khai Ngo, Virginia Tech • **Invited: "High-density Power Package with Improved Reliability, Electrical and Thermal Performances for Automotive Drivetrain"** Vanessa Smet GA Tech • **"A High Density and High Voltage Power Module with 3D Through Ceramic Via Providing Integration Solutions for Pulsed System"** Long Zhang, Gang Dai , Juntao Li, Yingkun Yang, Tingrui Gong, Kun Zhou, Feng Qin, Lei Gao, Chinese Academy of Engineering Physics, PR China
12:00 – 1:00	**Lunch & Networking**
1:00 – 2:45	**S8: Quality & Reliability – Chairs: Mike Azarian (U. of MD) and Doug DeVoto (NREL)** • **Keynote: "From Fit for Standard to Fit for Application"** Eckard Wolfgang, ECPE • **Invited: "Quality and Reliability Issue in Integrated Power Electronics"** Mike Azarian, U. MD • **Invited: "Live Condition Monitoring of High-Power Switching Devices using Smart Modulation"** Faisal Khan, U. of Missouri • **"Impact of Accelerated Stress-Tests on SiC MOSFET Precursor Parameters"** Joseph Kozak, Douglas DeVoto, Joshua Major, Khai Ng, NREL
2:45 – 3:15	**Break & Networking**
3:15 – 5:00	**Networking & Laboratory Tour – Chair: Prof. Patrick McCluskey (U. of MD)** • **Assisting:** Dr. Daniel Shen, U. of MD • **Assisting:** Mr. Subramani Manoharan, U. of MD

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