

IWIPP 2019 FULL SCHEDULE

Wednesday, April 24, 2019

8:00 AM – 8:15 AM	Welcome Comments by General Chair Thierry Lebey (LAPLACE, CNRS, University of Toulouse)
8:15 AM – 9:35 AM	Tutorial 1: Reliability and System Level Design Considerations for SiC Power Modules Ty McNutt (Wolfspeed)
9:35 AM – 10:20 AM	Plenary 1: Silicon Carbide for Power Devices: History, Evolution, Applications, and Prospects Ahmed Elasser (General Electric)
10:20 AM – 10:45 AM	PowerUp & Networking Break
10:45 AM – 11:30 AM	Plenary 2: Electrification Challenges in Aeronautics Christophe Lochot (Airbus)
11:30 AM – 1:00 PM	Networking Lunch & Poster Session 1 Poster Session Chair: Brandon Passmore (Wolfspeed)
1:00 PM – 3:05 PM	Systems & Circuits Technical Session Chair: Jin Wang (Ohio State University) Co-chair: Rolando Burgos (Virginia Tech University)
1:00 PM – 1:25 PM	Accelerating commercialization of WBG power electronics: PowerAmerica Systems and Circuits impact [Invited] Victor Veliadis (PowerAmerica, North Carolina State University)
1:25 PM – 1:50 PM	Module level and system level integrations of WBG devices for high power applications [Invited] Jin Wang (Ohio State University)
1:50 PM – 2:15 PM	Technology Challenges in SiC-based Medium Voltage Power Conversion [Invited] Rolando Burgos (Virginia Tech University)
2:15 PM – 2:40 PM	Metrology Considerations for Accurate Characterization of High-Bandwidth Power Electronics

	<p>Components & Applications [Invited] Andy Lemmon (University of Alabama)</p>
2:40 PM – 3:05 PM	<p>Evaluation of the PCB-Embedding Technology for a 3 kW Converter Remy Caillaud, Johan Le Leslé, <u>Cyril Buttay</u> (Univ. Lyon), Florent Morel, Roberto Mrad, Nicolas Degrenne, Stefan Mollov</p>
3:05 PM – 3:30 PM	PowerUp & Networking Break
3:30 PM – 5:35 PM	<p>Power Modules Technical Session Session Chair: Ty McNutt (Wolfspeed)</p>
3:30 PM – 3:55 PM	<p>A New Packaging Concept for Highly Reliable Power Modules [Invited] Shiori Idaka (Mitsubishi Electric)</p>
3:55 PM – 4:20 PM	<p>ABB LinPak: smart design for efficient converters [Invited] Fabian Fischer (ABB)</p>
4:20 PM – 4:45 PM	<p>The Development of 1200 V SiC Hybrid Switched Power Modules <u>Puqi Ning</u> (Chinese Academy of Sciences), Lei Li, Xuhui Wen</p>
4:45 PM – 5:10 PM	<p>Stacked DBC Cavity Substrate for a 15-kV Half-Bridge Power Module <u>Amol Deshpande</u> (University of Arkansas), Ange Iradukunda, David Huitink, Fang Luo, Lauren Boteler</p>
5:10 PM – 5:35 PM	<p>A Study of Dielectric Breakdown of a Half-Bridge Switching Cell with Substrate Integrated 650 V GaN Dies <u>Eduard Dechant</u> (Technical University of Applied Sciences, Rosenheim), Norbert Seliger</p>
5:35 PM – 7:00 PM	Welcome Reception
7:00 PM – 8:15 PM	<p>Laboratory Tours 1) Power Electronics and Integration – 20 min 2) Smart Grid and Emulation – 20 min 3) Actuation and Electro-Active Morphing – 20 min</p>

Thursday, April 25, 2019

8:00 AM – 8:15 AM	Welcome Comments by General Chair Thierry Lebey (LAPLACE Institute, University of Toulouse, CNRS)
8:15 AM – 9:35 AM	Tutorial 2: Conducted EMI in Power Electronics Systems Aaron Brovont (University of Alabama)
9:35 AM – 10:20 AM	Plenary 3: Novel Thermal & Packaging Paradigms for Next Generation Power Electronics Ercan Dede (Toyota Research Institute of North America)
10:20 AM – 10:45 AM	PowerUp & Networking Break
10:45 AM – 11:30 AM	Plenary 4: Reliability in Power Electronics Modules: A Challenge to Define Tools and Methodologies in Phase with the Performances of Power Chips and the Constraints of Use Laurent Dupont (IFSTTAR - SATIE)
11:30 AM – 1:00 PM	Networking Lunch & Poster Session 2
1:00 PM – 3:05 PM	Packaging & Interconnects Technical Session Chair: Puqi Ning (Chinese Academy of Sciences) Co-Chair: Brian Narveson (PSMA)
1:00 PM – 1:25 PM	Silver Sintering Die Attach – Myths & Physics [Invited] Gyan Dutt (Alpha)
1:25 PM – 1:50 PM	Advanced SiC Power Module Packaging: Layout, Material System and Integration [Invited] Fang Luo (U. of Arkansas), Amol Deshpande, and Cai Chen
1:50 PM – 2:15 PM	Rate controlled sintering: A novel approach to improve quality and yield of die-attach interconnects Merkert Simon, Aaron Hutzler, Thomas Krebs (Pink)
2:15 PM – 2:40 PM	Aerosol Jet Printing Process for Semi-Embedded Power Assembly S. Azzopardi (Safran Tech, Magny les Hameaux, France), T. Youssef, R. Khazaka, D. Martineau, J. Lelièvre, Ph. Lasserre, E. Pereira

2:40 PM – 3:05 PM	A New PCB Based Package and 3D Assembly for High Power Density Converters Roberto Mrad, <u>Remi Perrin</u> (Mitsubishi Electric), Julien Morand, Stefan Mollov
3:05 PM – 3:30 PM	PowerUp & Networking Break
3:30 PM – 5:10 PM	Modeling and Reliability Technical Session Chair: Pat McCluskey (University of Maryland) Co-chair: David Huitink (University of Arkansas)
3:30 PM – 3:55 PM	Reliability for Mission- and Safety-Critical Systems in Aerospace Applications [Invited] Zak Sorchini (UTC) and Steve Savulak
3:55 PM – 4:20 PM	3D-FE electro-thermo-magnetic modeling of automotive power electronic modules - Wire-bonding and Copper clip technologies comparison <u>Abdoulahad THIAM</u> (LAPLACE, University of Toulouse), Emmanuel SARRAUTE, William SANFINS, Frédéric RICARDEAU, Maël DURAND
4:20 PM – 4:45 PM	Prognostics and Reliability Assessment of Insulated Gate Bipolar Transistor Power Electronic Modules, <u>Erick Gutierrez</u> (University of Maryland), Kevin Lin, Patrick McCluskey
4:45 PM – 5:10 PM	High Temperature, Fast Power Cycling of Silicon Carbide Power Modules with Standard Si IGBT Module Solder Stackup, <u>Lauren E. Kegley</u> (Wolfspeed), Tim Foster, Sayan Seal, Robert Shaw, Brice McPherson, Brandon Passmore, Marcelo Schupbach, Ty McNutt
5:10 PM – 7:00 PM	Wine Tasting
7:00 PM – 10:00 PM	Conference Banquet Dinner at Espaces Vanel

Friday, April 26, 2019

8:00 AM – 10:05 AM	Dielectrics and Insulation Technical Session Chair: Mona Ghassemi (Virginia Tech University) Co-Chair: Davide Fabiani (University of Bologna)
8:00 AM – 8:25 AM	Ceramic Substrates and Liquids: Origin of Partial Discharges, and High Temperature Properties [Invited]

	<p><u>Olivier Lesaint</u> (Univ. Grenoble Alpes, CNRS, Grenoble INP), Joko Muslim, Rachelle Hanna</p>
8:25 AM – 8:50 AM	<p>Electrical Polymeric Insulation for Power Electronics: Physical Limits and New Tailored Composite Design Concepts [Invited] Sombel Diahm (LAPLACE, CNRS, University of Toulouse)</p>
8:50 AM – 9:15 AM	<p>Ceramic substrates for high voltage power electronics: past, present and future <u>Zarel Valdez-Nava</u> (LAPLACE, CNRS, University of Toulouse), Driss Kenfaui, Marie-Laure Locatelli, Lionel Laudebat, Sophie Guillemet- Fritsch</p>
9:15 AM – 9:40 AM	<p>Drastic Change in Non-Linear Resistive Materials I(V) Characteristics <u>Guillaume Belijar</u> (IRT Saint Exupéry), Loïc Hermette, Masahiro Kozako, Masayuki Hikita</p>
9:40 AM – 10:05 AM	<p>Effect of film thickness and electrode material on space charge formation and conductivity in polyimide thin films <u>F. Carrasco</u> (LAPLACE, CNRS, University of Toulouse), L. Berquez, S. Diahm, V. Griseri, T. Lebey, M.L. Locatelli, D. Marty-Dessus, H. Muto, K. Tajiri, G. Teyssedre</p>
10:05 AM – 10:15 AM	PowerUp & Networking Break
10:15 AM – 12:20 PM	<p>EMI and Parasitic Implications Technical Session Chair: Aaron Brovont (University of Alabama) Co-chair: Nicolas Degrenne (Mitsubishi Electric R&D Centre Europe - MERCE)</p>
10:15 AM – 10:40 AM	<p>Robust On-line Junction Temperature Estimation of IGBT Power Modules Based on V_{on} During PWM Power Cycling [Invited] <u>Nicholas Degrenne</u> (Mitsubishi Electric), Stefan Mollov</p>
10:40 AM – 11:05 AM	<p>Packaging and integration of passive components to reduce board space with optimized thermal and electrical performance [Invited] <u>John Bultitude</u> (KEMET), Tony Burk, Allen Templeton, Nathan Reed, Galen Miller, John McConnell, Javid Qazi, Abhijit Gurav, Lonnie Jones, Jim Magee, Manuel Ortiz, Mark Laps, Reggie Phillips, Kunihiro Kusano, Kenichi Chatani, Yoshihiro Saito</p>
11:05 AM – 11:30 AM	Study of the impedance of the bypassing network of a

	<p>switching cell – influence of the positioning of the decoupling capacitors <u>Yoann Pascal</u> (Lab. SATIE and CNAM, France), Mickaël Petit, Denis Labrousse, François Costa</p>
11:30 AM – 11:55 AM	<p>Bus Snubber Optimization for Multi-Chip Power Modules <u>Brian T. DeBoi</u> (University of Alabama), Andrew N. Lemmon</p>
11:55 AM – 12:20 PM	<p>PEEC Method and Hierarchical Approach Towards 3D Multichip Power Module (MCPM) Layout Optimization <u>Quang Le</u> (University of Arkansas), Tristan Evans, Yarui Peng, Alan Mantooth</p>
12:20 PM – 1:00 PM	<p>Networking Lunch</p>
1:00 PM – 2:40 PM	<p>Thermal Challenges Technical Session Chair: Lauren Boteler (Army Research Laboratories) Co-Chair: Ercan Dede (Toyota Research Institute of North America)</p>
1:00 PM – 1:25 PM	<p>Advanced Thermal Ground Planes for Power Electronics [Invited] Ryan McGlen (Aavid, Boyd Corp)</p>
1:25 PM – 1:50 PM	<p>Thermal simulations of SiC MOSFETs under short-circuit conditions: influence of various simulation parameters <u>Yoann Pascal</u> (Lab. SATIE and CNAM, France), Mickaël Petit, Denis Labrousse, François Costa</p>
1:50 PM – 2:15 PM	<p>Measurement of Space Charge Distribution Accumulated in Liquid Crystal Polymer and Polyimide at High Temperature Under High Dc Electric Field, <u>Maimi Mima</u> (Tokyo City University), Yuuki Narita, Hiroaki Miyake, Yasuhiro Tanaka</p>
2:15 PM – 2:40 PM	<p>Thermal Management and Reliability of Power Electronics and Electric Machines [Invited] Sreekant Narumanchi (National Renewable Energy Laboratory)</p>
2:40 PM – 3:00 PM	<p>Concluding Remarks</p>