



POWERAMERICA

Next Generation Power
Electronics Manufacturing
Innovation Institute

2023 WBG Summer Workshop

August 8 – 10, 2023

NC State University

Raleigh, NC 27606

All Times are Eastern Daylight (New York) Time

Event Sponsor:



Tuesday August 8	
1:00 PM	Introduction to Tutorials Victor Veliadis, PowerAmerica's Executive Director and CTO
1:05 – 3:45 PM	WBG Tutorials <ul style="list-style-type: none">• Sei-Hyung Ryu, Wolfspeed: SiC Power MOSFET Design Considerations, Ruggedness, and Radiation Hardness• Roger Brewer, Lockheed Martin: WBG Technologies, Capacitors & High Temperature Electronics for Modern Aircraft Applications
4:00 PM	Membership Advisory Committee Meeting (<i>Members only</i>)
5:30 – 7:00 PM	Networking Reception
Wednesday August 9	
8:00 AM	Networking Breakfast
8:30 AM	Welcoming Remarks Victor Veliadis, PowerAmerica's Executive Director and CTO
8:45 AM	Keynote: Clayton Pillion, VP Silicon Carbide Business Unit, Microchip: Empowering a More Sustainable Future with SiC
9:30 AM	MIP #4 Update -- Wensong Yu, NC State University: Demonstration of a 100 kW SiC Inverter with Soft-Switching dv/dt Filter and Ultra High Efficiency for Motor Drives
10:00 AM	Networking Break – Sponsored by Hesse Mechatronics
10:30 AM	MIP #4 Update -- Yue Zhao, University of Arkansas: Design and Demonstration of a Current Sharing Strategy for Paralleling High Current Silicon Carbide Modules

11:00 AM	MIP #4 Update -- Rick Eddins, GE: Paralleling of GaN Modules for High Power Applications
11:30 AM	Event Sponsor Presentation – Aehr Test Systems
11:45 AM	Networking Lunch
1:15 PM	Newer Member Introductions <ul style="list-style-type: none"> ● Ideal Power - Mudit Khanna ● University of Houston - Harish Krishnamoorthy ● BorgWarner - Harsha Nanjundaswamy ● Coherent - Andy Souzis ● Delta - Peter Barbosa ● Beneq - Dilip Deshpande
2:30 PM	MIP #5 Update -- Yuhao Zhang, Virginia Tech: High-Frequency, Soft-Switching Losses of GaN and SiC Devices: Application-oriented Evaluation and Physical Mechanism
3:00 PM	MIP #5 Update -- Juan Rivas-Davila, Stanford University: Automated Tool to Measure Soft-switching C_{oss} Losses in Wide Bandgap Power Devices
3:30 PM	Networking Break – Sponsored by Hesse Mechatronics
4:00 PM	MIP #5 Update -- Subhashish Bhattacharya, NC State University: A 650V GaN-based Three-Level ANPC Inverter for Electric Vehicle Traction
4:30 PM	MIP #5 Update -- Nathan Weise, Marquette University: Multilevel GaN-based Traction Drive Inverter
5:00 PM	MIP #5 Update -- Kevin Bai, University of Tennessee-Knoxville: Design and Test A 800V/>50kW Three-level Active Neutral Point Clamping Motor Drive Inverter using 650V/60A GaN HEMTs for Electric Vehicles
5:30 PM	Travel to Park Alumni Center (2450 Alumni Drive)
6 – 8 PM	Evening Reception @ Park Alumni Center (Heavy Hors-D'oeuvres) – Sponsored by TBD
Thursday August 10	
8:00 AM	Networking Breakfast
8:30 AM	Keynote: Jeff Perkins, EVP & GM, Yole: Update on SiC and GaN Market Dynamics
9:15 AM	MIP #4 Update -- Jim Cooper, Sonrisa and Purdue University: Increasing Channel Mobility, Reducing Threshold Instability, and Improving Robustness of 650 V SiC Power MOSFETs
9:45 AM	MIP #5 Update -- Ram Adapa, EPRI: Defining the Full Benefits of WBG Technology for the Power Grid
10:15 AM	Networking Break – Sponsored by Hesse Mechatronics
10:45 AM	Undergraduate Student Scholarship Project Presentation - - Maximo DiPreta, Virginia Tech (remote) - Reliability of Double-Side Cooled GaN HEMT Phase-Leg Modules
11:15 AM	Panel Discussion: Commercialization Success (4 panelists) 1. Brij Singh, John Deere (virtual)

	2. Rick Eddins, GE 3. Pete Losee, Qorvo 4. Llew Vaughan-Edmunds, Navitas
12:15 PM	Networking Lunch
1:30 PM	MIP Topic Selection Breakouts A- Grid Modernization B- Energy-Efficient Data Centers and Industrial Applications C- Energy-Efficient Motor Drives D- Electric Vehicles E - Innovation in materials, and manufacturing tools F - Advanced packaging and passive components
3:00 PM	Adjourn

August 1, 2023 version