



POWERAMERICA

Next Generation Power
Electronics Manufacturing
Innovation Institute

2022 Wide Bandgap Summer Workshop

“SiC and GaN: The Future is Now”

August 2-4, 2022

Hunt Library, NC State University, Raleigh, NC

All Times are Eastern Daylight (New York) Time

Tuesday August 2	
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">• Advancing GaN Power Integration: Efficiency, Reliability & Autonomy - Dan Kinzer, Navitas• The future of drives: SiC? - David Levett, Consultant
4:00 PM	Membership Advisory Committee Meeting (<i>Members only</i>)
5:30 – 7:00 PM	Networking Reception – Sponsorship Available
Wednesday August 3	
8:00 AM	Networking Breakfast - Sponsored by Hesse Mechatronics
8:30 AM	Welcome Remarks Victor Veliadis, PowerAmerica’s Executive Director and CTO
8:45 AM	Keynote: WBG Power Semiconductors and Their Role in Green Energy and Mobility Sector Electrification, Peter Friederichs, Senior Director - Silicon Carbide, Infineon
9:30 AM	MIP #3 Final Report: SiC-based Module Building Block with Integrated Inductor and Gate Driver, <i>Christina DiMarino, Virginia Tech</i> (teamed with Infineon and Lockheed-Martin)
10:00 AM	MIP #3 Final Report: Demonstration of Advanced Power Packaging Technology for Near Term Commercialization, <i>Doug Hopkins, North Carolina State University</i> (teamed with Transphorm and Qorvo)
10:30 AM	Networking Break - Sponsored by Heraeus
11:00 AM	MIP #3 Final Report: Silicon Carbide Power Modules for Medium Voltage Applications, <i>Alan Mantooth, University of Arkansas-Fayetteville</i> (teamed with Microchip and NREL)
11:30 AM	MIP #3 Final Report: Embedded GaN Power Module for High Frequency 400V/>20A Operation with Double-Sided Cooling and Integrated Gate-Drive Circuit, <i>Helen Cui, University of Tennessee-Knoxville</i> (teamed with GaN Systems and NREL)
12:00 PM	Networking Lunch – Sponsored by Hesse Mechatronics

1:00 PM	New Member Introductions <ul style="list-style-type: none"> ● Keithley Instruments/Tektronix ● Analog Devices ● Nissan-USA ● Soitec
1:30 PM	MIP #4: MV Solid State & Hybrid Breaker Architectures using SiC JFETs, <i>Mohammed Agamy – SUNY, Albany</i> (teamed with Qorvo)
2:00 PM	MIP #4: Optimal HV SiC Device Characteristics for D-FACTS Rated 5 kV to 25 kV, <i>Ram Adapa – Electric Power Research Institute</i> (teamed with University of Arkansas, NC State University)
2:30 PM	MIP #4: Increasing Channel Mobility, Reducing Threshold Instability, and Improving Robustness of 650 V SiC Power MOSFETs, <i>Dallas Morissette - Purdue University</i> (teamed with Sonrisa)
3:00 – 3:30 PM	Networking Break – Sponsored by Heraeus
3:30 - 5:00 PM	PowerAmerica 2023 and Beyond: New Funding Opportunities and Scope Member input is sought on priorities. (in person only)
5:00 - 6:00 PM	Student/Industry Mixer (Poster Session) (in person only)
5:30 – 7:30 PM	Evening Reception (Heavy Hors-D’oeuvres) – Fitts-Woolard Hall (adjacent to Hunt Library) - Sponsorship available
Thursday August 4	
8:00 AM	Networking Breakfast - Sponsored by Hesse Mechatronics
8:30 AM	Keynote: Pavel Freundlich, Senior Director & CTO at onsemi, Power Solutions Group
9:15 AM	MIP #4: Design and Demonstration of Current Sharing Strategy for Paralleling High Current Silicon Carbide Modules, <i>Yue Zhao – Univ. of Arkansas</i> (teamed with Microchip)
9:45 AM	MIP #4: Demonstration of 100 kW SiC Inverter with Soft-Switching dv/dt Filter and Ultra High Efficiency for Motor Drives, <i>Wensong Yu – NC State University</i> (teamed with Microchip)
10:15 AM	Networking Break – Sponsored by Heraeus
10:45 AM	MIP #4: Paralleling of GaN Modules for High Power Applications, <i>Rick Eddins – GE</i> (teamed with NREL, NC State)
11:15 AM	Undergraduate Student Scholarship Projects <ul style="list-style-type: none"> ● Mehmet Fesli, University of Akron-Prof Yilmaz Sozer ● Jordan Hamlett, Miami University-Prof Mark Scott ● Liam Gaffney and Vincent Pagliaro, Virginia Tech-Prof Yuhao Zhang
11:45 AM	Jeffrey Perkins, Executive VP and General Manager, Yole SiC and GaN Market Overview
12:45 PM	Networking Lunch – Sponsored by Hesse Mechatronics
1:45 PM	Adjourn

Draft version dated July 19, 2022