



**POWERAMERICA**

Next Generation Power  
Electronics Manufacturing  
Innovation Institute

## 2024 Virtual WBG Summer Workshop

August 6-8, 2024

All Times are Eastern Daylight (New York) Time



**Event Sponsor**

Online Only

Tuesday August 6	
1:00 PM	<b>Workshop welcome</b> Victor Veliadis, PowerAmerica's Executive Director and CTO
1:05 – 2:20 PM	<b>WBG Tutorials</b> <ul style="list-style-type: none"> <li>● Tutorial Ultra-WBG Power Technology Robert Kaplar, Andrew Binder - Sandia National Lab</li> <li>● Graduate Student Research <ul style="list-style-type: none"> <li>○ David Graves - Texas Tech University: Simulations of an N-Type SiC Drift Step Recovery Diode in Silvaco Victory Device</li> <li>○ Harshal Talur Lokesha - NC State University: Design of a DC-DC converter with SiC Devices and High-Frequency Magnetics</li> <li>○ Micah Lapointe - Texas Tech University: The use of Solid-State GaN HEMT Devices for HPM Generation</li> <li>○ Reza Mounsi - Univ. of South Carolina: Medium Voltage Megawatt EV Charging System Using Silicon Carbide (SiC) Technology</li> </ul> </li> </ul>
2:20 - 3:40	
20 min	Break
4:00 - 5:00 PM	<b>Membership Advisory Committee Meeting (<i>Members only</i>)</b>
Wednesday August 7	
11:00 AM	<b>Welcoming Remarks</b> Victor Veliadis, PowerAmerica's Executive Director and CTO
11:10 - 12:00	<b>Keynote:</b> Frazer Anderson, Chief Technology Officer, Oxford Instruments
12:00 - 12:20	MIP Final Report - Wensong Yu, NC State University: <b>Performance Validation of a 100 kW SiC Inverter with Soft-Switching dv/dt Filter and Ultra High Efficiency for Motor Drives</b>

12:20 - 12:40	MIP Final Report - Yue Zhao, University of Arkansas: <b>Design and Demonstration of a Current Sharing Strategy for Paralleling High Current Silicon Carbide Modules</b>
20 min	Break
1:00 - 1:20	MIP Final Report - Yuhao Zhang, Qihao Song, Virginia Tech: <b>Round Robin characterization of the high-frequency, soft-switching <math>C_{oss}</math> loss of WBG devices</b>
1:20 - 1:40	MIP Final Report - Juan Rivas-Davila, Katherine Liang, Stanford University: <b>Round Robin characterization of the high-frequency, soft-switching <math>C_{oss}</math> loss of WBG devices</b>
1:40 - 2:00	MIP Final Report - Subhashish Bhattacharya, Partha Das, Subransu Satpathy, NC State University: <b>A 650V GaN-based Three-Level ANPC Inverter for Electric Vehicle Traction</b>
20 min	Break
2:20 - 3:20	<b>DoE Power Electronics Research Roadmap</b> , Andrew Ritenour, ICF
3:30 PM	<b>Adjourn</b>
<b>Thursday August 8</b>	
11:00 - 11:50	<b>Keynote:</b> Tamara Baksht, Founder and CEO, VisIC
11:50 - 12:10	Overview of RFP for R&D Projects - Victor Veliadis
12:10 - 12:30	Overview of RFP for Education Projects - Lavinia Sebastian, Manager of PowerAmerica Education and Workforce Development
20 min	Break
12:50 - 1:50	<b>UG Student Scholarship Final Reports</b> <ul style="list-style-type: none"> <li>● Dennis Woo - Stanford Univ.: Design of a Phi-2 Resonant Converter</li> <li>● Damian Vasquez - Univ. of Houston: Toward Reliable SiC FETs in Power Converters under Harsh Lunar Surface Conditions</li> <li>● Alyssa Bandell - VA Tech: Characterization of Porous Sintered Silver Inter-Posts and their Impact on the Thermomechanical Reliability on a Double-Side Cooled Power Module</li> </ul>
1:50 - 3:10	<b>Graduate Student Research</b> <ul style="list-style-type: none"> <li>● Gaureej Gauttam - Univ. of Houston: GaN Based Pulse Power Converter Architecture and Design for Nuclear Magnetic Resonance (NMR) Applications</li> <li>● Ekaterina Muravleva - Univ. of Nebraska: Design of SiC Switch Cells with Integrated Gate Drivers for Multicell High-frequency Press-Pack Modules</li> <li>● Mano Bala Sankar Muthu - Texas Tech: AlGaIn/GaN Normally-Off HEMT for High-Power Electronics Applications</li> <li>● Majid Adeli - U. South Carolina: Compact, GaN-Based, 25kW 480 VAC Bidirectional Inverter</li> </ul>
20 min	Break
3:30 - 4:15	<b>Improved Process Control for SiC PVT Growth</b> , Dr. Max Shatalov, VP of Engineering, CVD Equipment
4:15 PM	<b>Adjourn</b>

