PowerAmerica

The PowerAmerica Institute at NC State seeks to save energy and create U.S. manufacturing jobs by accelerating the development and large-scale adoption of SiC and GaN wide bandgap semiconductor technology in power electronic systems. We work across the supply chain, bringing together industry, academia and national lab partners to form a wide bandgap manufacturing ecosystem.

PowerAmerica Member Presentations

		Room	Title and Presenter
SUN. 3/26	9:30 am-1 pm	15/16	**Silicon Carbide MOSFETs - a Deep Dive to Accelerate Your Next Power Converter Design** Sujit Banerjee, Monolith Semiconductor
MON. 3/27	8:30 am-12 pm	15/16	**SiC Power Devices and MV Power Converter Applications** PowerAmerica CTO & Interim Deputy Director Victor Veliadis; Subhashish Bhattacharya, NC State
		18/19	**Current Mode Control Modeling-3 Decades of Progress** Fred Lee, Virginia Tech
TUES. 3/28	9:22 am - 9:48 am.	20	**Capacitor Voltage Ripple Reduction with State Trajectory Analysis for Modular Multilevel Converter** Fred Lee and Qiang Li, Virginia Tech
	11:33 am-12 pm	23	**Hybrid Control Strategy to Extend the ZVS Range of a Dual Active Bridge Converter** Subhashish Bhattacharya, NC State
		18/19	**Multi-Phase Coupled and Integrated Inductors for Critical Conduction Mode Totem-Pole PFC Converter** Fred Lee and Qiang Li, Virginia Tech
	5:30 pm-6:30 pm	18/19	**Panel Discussion:** 3D Printing and Power Supply on Chip/Power Supply in Package vs. Discrete Designs Madhu Chinthavali, Oak Ridge National Laboratory; Doug Hopkins, NC State; Albert Charpentier, Agile Switch **Panel Discussion:** Do We Need to Progress Towards GHz Switching in High Power Systems and Applications? **Speaker:** Ty McNutt, Wolfspeed
WEDS. 3/29	8:30 am-10:10 am	13	**Design for Manufacturability - a Paradigm Shift** Fred Lee, Virginia Tech
		1/2	**A 500 kHz, 3.3 kW Boost PFC with Low Loss Coupled Auxiliary ZVT Circuit** Raja Ayyanar, Siddharth Kulasekaran and Nikhil Korada, Arizona State
		18/19	**New ZVT Topology for Switched Inductor High Gain Boost** Raja Ayyanar, Tong Yao and Chenhaeo Nan, Arizona State
	9:20 am-10:10 am	18/19	**High-Efficiency High-Power-Density 48V/1V Sigma Converter Voltage Regulator Module** Fred Lee and Qiang Li, Virginia Tech
	2 pm-2:30 pm	1/2	**High-Efficiency High-Power-Density 380V/12V DC/DC Converter with a Novel Matrix Transformer** Fred Lee and Qiang Li, Virginia Tech
	2 pm-5:25 pm	15/16	**Toward Medium Voltage (3.3-15kV) SiC Devices** Ranbir Singh, GeneSiC
	4 pm-4:30 pm	22	**Analysis of the dv/dt Transient of Enhancement-Mode GaN FETs** Fred Wang, University of Tennessee-Knoxville
	5 pm-5:30 pm	25	**High Frequency Transformer Design for Modular Power Conversion from Medium Voltage AC to 400V DC** Fred Lee and Qiang Li, Virginia Tech

THURS. 3/30

	Room	Title and Presenter
8:30 am- 11:30 am	13	**Industry Panel: Industrial Power Applications of SiC Semiconductors** **Moderator:** Jim LeMunyon, PowerAmerica **Speakers:** John Muth, NC State; John Palmour, Wolfspeed; Brij N Singh, John Deere; Peter Liu, Toshiba; Sujit Banerjee, Monolith Semiconductor; Wolfspeed team
8:30 am- 11:20 am	18/19	**GaN Based Transformer-less Microinverter with Extended Duty Ratio Boost and Double Grounded Voltage Swing Inverter** **A GaN Based Double Grounded, Reduced Capacitance Transformer-less Split Phase Photovoltaic Inverter with Active Power Decoupling** Raja Ayyanar, Jinia Roy and Yinglai Xia, Arizona State
8:30 am- 8:58 am	1/2	**A Novel PCB Winding Transformer with Controllable Leakage Integration for a 6.6kW 500kHz High Efficiency High Density Bi-Directional on-Board Charger** Fred Lee and Qiang Li, Virginia Tech
8:58 am- 9:26 am	21	**Novel Cooling Technology to Reduce Thermal Impedance and Thermomechanical Stress for SiC Application** Hui Li, Florida State
10:51 am- 11:20 am	18/19	**Split-Winding Type Three Limb Core Structured HF Transformer for Integrating PV and Energy Storage(ES)** Fred Lee and Qiang Li, Virginia Tech
2 pm - 4:30 pm	23	**A Single Phase Transformer-less String Inverter with Integrated Magnetics and Active Power Decoupling** Raja Ayyanar and Jinia Roy, Arizona State
2 pm - 5:25 pm	15/16	**Strategic Guidance to Accelerate Large-Scale Adoption of Wide Bandgap Power Semiconductors** PowerAmerica CTO and Interim Deputy Director Victor Veliadis **Driving Silicon Carbide Power Module: Efficiency and Reliability** Nitesh Satheesh, AgileSwitch
2 pm - 5:30 pm	20	**Inductor Feedback ZVT Based, Low THD Single Phase Full Bridge Inverter with Hybrid Modulation Technique** Raja Ayyanar and Yinglai Xia, Arizona State
4:43 pm- 5:06 pm	24	**Bi-Directional on-Board Charger Architecture and Control for Achieving Ultra-High Efficiency with Wide Battery Voltage Range** Fred Lee and Qiang Li, Virginia Tech
	20	**Indirect Voltage Control of a Stand-Alone Inverter** **Chair:** Hui "Helen" Li, Florida State; **Speaker:** Mehdi Ferdowsi, InnoCit
5:06 pm- 5:30 pm	21	**Application-Focused Modeling Procedure for 1.2kV SiC MOSFET's** Sujit Banerjee, Monolith Semiconductor
	11	**An Enhanced Adaptive Frequency Locked Loop for Variable Frequency Controls** Fred Lee and Qiang Li, Virginia Tech

*This agenda is subject to change, please refer to APEC's website for updates.

Stop by and see us at booth #737!

Visit our member booths:

AgileSwitch®	John Deere	Monolith Semiconductor Inc.	transphorm	USCi United Silicon Carbide, inc.	Wolfspeed	XFAB Mixed-Signal Foundry Experts
#836	#1436	#536	#824	#1312	#1110	#639