

**Workshop Will Present Developments In Wide Bandgap Power Devices & Applications**

The IEEE Workshop on Wide Bandgap Power Devices & Applications ([WiPDA](#)) provides a forum for device scientists, circuit designers, & application engineers from IEEE’s Power Electronics & Electron Devices Societies as well as the Power Supply Manufacturer’s Association to share technology updates, research findings, experience & potential applications.

It will be held October 31 – November 2, 2018 at Georgia Tech Hotel and Conference Center, Georgia Institute of Technology, Atlanta, Georgia, USA. The workshop will host seven tutorials on October 31. Four keynote presentations will be given on November 1 along with two panel sessions. An additional four keynote presentations will also be held on November 2. Technical sessions and a poster session will take place during the conference as well.

Topics of technical content include:

- Heteroepitaxial & bulk materials growth
- Gate dielectrics & surface passivation
- Device structures & fabrication techniques
- Device characterization & modeling
- Very-high efficiency or compact converters
- Safe operating areas of wide-bandgap devices, including short circuit, spike, & transient tolerance
- Harsh environment (high temperature) operation & reliability
- Packaging power modules & ICs
- Hard-switched & soft-switched application analysis
- Gate drive & other auxiliary circuits
- High-performance passive components
- Applications in renewable energy & energy storage, transportation, industrial drives, & grid power systems
- Wide-bandgap system design philosophies & strategies.

A summary agenda can be found below. For more information, see the WiPDA [website](#).

**SCHEDULE AT A GLANCE: Wednesday**  
 October 31, 2018

Start	End	Agenda Item
2:00 PM	5:30 PM	ITRW Meeting (Salon I,II,V, VI)
7:30 PM	9:30 PM	JEDEC Meeting (Salon III & IV)

**SCHEDULE AT A GLANCE: WEDNESDAY**

October 31, 2018

Tutorial Sessions Location: **Salon III – IV**

Start	End	Agenda Item
9:00 AM	10:00 AM	<b>Tutorial: "Silicon Carbide Power Devices: Making the Transition From Silicon"</b> <i>Victor Veliadis, North Carolina State University</i>
10:00 AM	11:00 AM	<b>Tutorial: "How to Design High Efficiency and High Density GaN Switching Power Supply"</b> <i>Ruiyang Yu and Qingyun Huang, University of Texas at Austin</i>
11:00 AM	12:00 PM	<b>Tutorial: "Developing High Power, Medium Voltage Silicon Carbide based Power Electronics"</b> <i>Jin Wang, Ohio State University, Mark J. Scott, Miami University, and Haiwei Cai, Southeast University</i>
12:00 PM	1:30 PM	Lunch (GT Hotel Dining)
1:30 PM	2:30 PM	<b>Tutorial: "SiC Power Device Reliability"</b> <i>Donald A. Gajewski, Wolfspeed</i>
2:30 PM	3:30 PM	<b>Tutorial: "Measurement and Analysis Method of Parasitic Capacitance and Inductance in Power Device and Power Electronic Circuit"</b> <i>Ryo Takeda, Keysight Technologies</i>
3:30 PM	4:30 PM	<b>Tutorial: "Advanced Power Module Packaging: from Design to Validation"</b> <i>Fang Luo, David Huitink, and Yarui Peng, University of Arkansas</i>
4:30 PM	5:30 PM	<b>Tutorial: "Emerging Ultra-Wide Band Gap (UWBG) Power Electronic Devices"</b> <i>Sriram Krishnamoorthy, University of Utah</i>
6:00 PM	8:00 PM	Vendor Exhibits and Social Reception

**SCHEDULE AT A GLANCE: THURSDAY**

November 1, 2018

Start	End	Agenda Item
8:00 AM	8:15 AM	<p><b>Welcome Address</b> Eric Persson, Infineon (Salon III – IV)</p>
8:15 AM	8:45 AM	<p><b>Keynote</b> “WBG Power Electronics: Major Challenges and Potential Pathways for Commercialization” JOHN SHEN, <i>Illinois Institute of Technology</i> (Salon III – IV)</p>
8:45 AM	9:15 AM	<p><b>Keynote</b> “Challenges, Opportunities, and Applications for GaN-based Flying Capacitor Multi-Level Converters” ROBERT PILAWA-PODGURSKI, <i>University of California, Berkeley</i> (Salon III – IV)</p>
9:15 AM	9:40 AM	<p><b>Break</b> Coffee, Tea, and Refreshments provided by JEDEC</p>
9:45 AM	10:30 AM	<p><b>Panel Session</b> “Ask the Experts: GaN Reliability /Qualification Q and A” SANDEEP BAHL, <i>TI</i> KENICHIRO TANAKA, <i>Panasonic</i> SAMEH KHALIL, <i>Infineon Technologies</i> JAUME ROIG, <i>ON Semiconductor</i> RON BARR, <i>Transphorm</i> (Salon III – IV)</p>
10:30 AM	11:15 AM	<p><b>Panel Session</b> “SiC MOSFET Reliability and Ruggedness: Present Status and Future Directions” ANANT AGARWAL, <i>The Ohio State University</i> AIVARS LELIS, <i>Army Research Laboratory</i> DON GAJEWSKI, <i>Wolfspeed</i> SUBHASHISH BHATTACHARYA, <i>North Carolina State University</i> BRIAN PEASLEE, <i>General Motors</i> (Salon III – IV)</p>
11:15 AM	1:15 PM	<p><b>Lunch</b> (GT Hotel dining) Buffet provided by FocusTest Inc.</p>

**SCHEDULE AT A GLANCE: THURSDAY**  
November 1, 2018

Start	End	Agenda Item	
1:15 PM	1:45 PM	<p>Keynote</p> <p><b>"DOE Advanced Manufacturing Office Programs on Wide-Bandgap Power Electronics"</b></p> <p>ALLEN HEFNER, NIST and DOE Advanced Manufacturing Office (Salon III – IV)</p>	
1:45 PM	2:15 PM	<p>Keynote</p> <p><b>"Reliability of GaN Power Transistors"</b></p> <p>KENICHIRO TANAKA, Panasonic Corporation (Salon III – IV)</p>	
2:15 PM	2:45 PM	<p>Keynote</p> <p><b>"GaN and SiC: How They Will Impact the Future of Power Electronics Industry"</b></p> <p>ANA VILLAMOR, Yole Développement (Salon III – IV)</p>	
2:45 PM	3:15 PM	<p>Break/Session Setup Period</p> <p>Coffee, Tea, and Refreshments</p>	
3:15 PM	5:20 PM	<p>Technical Session 1</p>	
		<table border="1"> <tr> <td>GaN Enabled Application and Hybrid Switches (Conference A)</td> <td>GaN Reliability and Devices (Salon I-II)</td> <td>SiC Device Fabrication and Reliability (Salon V – VI)</td> </tr> </table>	GaN Enabled Application and Hybrid Switches (Conference A)
GaN Enabled Application and Hybrid Switches (Conference A)	GaN Reliability and Devices (Salon I-II)	SiC Device Fabrication and Reliability (Salon V – VI)	
6:00 PM	9:00 PM	<p>Conference Banquet and Poster Session</p> <p>(Grand Ballroom Foyer)</p>	

**SCHEDULE AT A GLANCE: FRIDAY**

November 2, 2018

Start	End	Agenda Item		
8:00 AM	8:30 AM	<b>Keynote</b> "Switched Tank Converters – Leveraging the Benefits of GaN and SiC" DONG CAO, <i>North Dakota State University</i> (Salon III – IV)		
8:30 AM	9:00 AM	<b>Keynote</b> "Gate Drive and Protection Considerations in Applying SiC MOSFETs" LEON TOLBERT, <i>Oak Ridge National Laboratory</i> (Salon III – IV)		
9:00 AM	9:30 AM	<b>Keynote</b> "Achieving High Power Density Through GaN Power Devices" ALEX Q. HUANG, <i>University of Texas at Austin</i> (Salon III – IV)		
9:30 AM	10:00 AM	Break/Session Setup Period Coffee, Tea, and Refreshments		
10:00 AM	11:40 AM	<b>Technical Session 2</b>		
		GaN Device Characterization and Gate Drive (Conference A)	High Efficiency SiC-based Power Converters (Salon I-II)	SiC Device Characterization (Salon V-VI)
11:40 AM	1:00 PM	Lunch (GT Hotel Dining) Lunch provided by Texas Instruments (12:30 PM – 1:00 PM: Session Setup Period)		
1:00 PM	2:40 PM	<b>Technical Session 3</b>		
		GaN Soft switching and Multilevel Applications (Conference A)	GaN Device Integration and Performance (Salon I-II)	Practical Considerations in SiC-based Power Converters (Salon V-VI)
2:40 PM	3:00 PM	Break/Session Setup Period Coffee, Tea, and Refreshments provided by <i>SemiProbe</i>		

3:00 PM	4:40 PM	<b>Technical Session 4</b>	
		GaN Power Module and Package (Conference A)	SiC Power Modules and Devices for High Performance Power Converters (Salon I-II)
4:40 PM	5:00 PM	<b>Conference Wrap-up</b> Maryam , <i>Georgia Tech</i>	