

NEWSLETTER



SEPTEMBER 2026

UNIVERSITY OF WISCONSIN-MADISON



**WEMPEC STUDENTS AND FACULTY TO ATTEND
ECCE 2026!
COME SEE US AT UNIVERSITY TABLE NO. 9**

Special Sessions and Tutorials

Special Session – Bidirectional Switches: From Devices to Topologies to Real-World Applications – October 5th - **Thomas Jahns (UW Madison), Panelist and Speaker**

Tutorial 11 – Emerging Current-Source, Multilevel, Open-End Winding, and Modular Drive Architectures using WBG Devices for Next-Generation Electrified Systems – Beyond the Two-Level Voltage-Source Inverter – October 5th - **Bulent Sarlioglu (UW Madison), Panelist**

WEMPEC PAPERS - ECCE ORAL SESSIONS

- Oral Session No. 2 EV Charging Architectures for Grid, Vehicle, and Auxiliary Power Applications – October 5th – **Bulent Sarlioglu (UW Madison)**, (with Mohamed Metwly and Jiangbiao He, Univ. of TN, Knoxville). [Integrated Onboard Fast Battery Charger Based on 9-Phase Propulsion Motor-Drive System.](#)
- Oral Session No. 17 AC-DC Converters: Single-phase and Multi-phase - October 5th – **Shalini Manna, Giri Venkataramanan (UW Madison)**. [AC Current-Stiff Converters for High Frequency Isolated Applications.](#)
- Oral Session No. 41 Emerging Power Electronic Technologies and applications 2 – October 7th – **Elijah Berger, Daniel Ludois (UW Madison)**. [Capacitively Isolated In-Flow Heating of Electrolyte Solutions.](#)
- Oral Session No. 46 Electric Machine Thermal management and Cooling Technologies – October 7th – **Justin Paddock, Gregory Nellis, Bulent Sarlioglu (UW Madison)**. [Machine Design Optimization for Layered In-slot Cooling Using Additively Manufactured Heat Exchangers.](#)
- Oral Session No. 62 Modelling and Control of Inverters 1 – October 7th – **Sangin Bae, Jinia Roy (UW Madison)**. [A Virtual-Impedance-Based Closed-Loop Control of Modular Multilevel Converter with Active Power Decoupling.](#)
- Oral Session No. 64 Design Automation, Design in the Cloud, Digital Twins and Autonomous System Applications – October 7th – **Hyeonmeen Baik, Hamed Poursiami, Maryam Parsa, Jinia Roy (UW Madison, George Mason Univ.)**. [EMI-Robust Physics-Informed Neural Networks for DC-DC Converter Parameter Identification.](#)
- Oral Session No. 78 Performance Enhancement Strategies in Motor Drives – October 7th – **Pengkun Tian, Thomas Jahns, Bulent Sarlioglu (UW Madison)**. [Analysis and Design of a 30 kW Balanced Inverter Based Motor Drive for CM EMI Cancellation.](#)

WEMPEC PAPERS - ECCE POSTER SESSIONS

- **Albert Rhee, Al-Thaddeus Avestruz, Solomon Adera, Jinia Roy (UW Madison, Univ. of MI)**. [Mass-Optimized Geometry for Magnetics in Space Applications.](#)
- **Pourya Javidi, Abhinav Chinnusamy, Jinia Roy (UW Madison)**. [A Multi-Port LCL-T Resonant Converter-Voltage Controlled Current Source for Capacitor Charging in Impedance Matched Solid-State Marx Generators.](#)
- **Abhinav Chinnusamy, Pourya Javidi, Jinia Roy (UW Madison)**. [Sensitivity Analysis of Impedance and Inter-Stage Delay Mismatches in Impedance-Matched Solid-State Marx Generators.](#)
- **Waiyan Chan, Lei Zhou – (UW Madison)**. [Over-Actuated Axial Flux Permanent Magnet Motor Using PCB Stator.](#)
- **Yizhou Han, Lei Zhou – (UW Madison)**. [Dual-Rotor Vernier Permanent Magnet Motor for High Torque and Interactive Robot Actuation.](#)
- **Maheep Bhatt, Antonio Trujillo Parra, Renato Amorim Torres, Thomas Nehl, Thomas Jahns, Bulent Sarlioglu (UW Madison, Pontiac)**. [Double Pulse Test for Current Source Inverter with Front-End DC-DC Converter Using GaN Monolithic Bidirectional Switches.](#)
- **Hyeonmeen Baik, Sangin Bae, Daniel Hartog, Jinia Roy (UW Madison)** [Modeling and Dual-Mode Control of a Pulsed Buck Flashlamp Driver.](#)

DEMO

Justin Paddock, Table 26
Additively Manufactured Heat Exchangers for In-Stack Electric Machine Cooling

Welcome, Professor Costinett!

Daniel Costinett has joined the UW Madison ECE Team as a Grainger Chair for Power Electronics Professor.

Costinett earned his PhD at the University of Colorado at Boulder, studying power supplies for data centers. After a year as an instructor at Utah State University, he joined the faculty of the University of Tennessee, Knoxville, where he remained for 13 years.

Costinett's primary work focuses on the small stuff, including power supplies, microelectronics, low-power applications and detailed circuit design. His most recent projects incorporate better analysis into the circuit design process, including a framework and open-source tools that aid in the development of next-generation GPUs—the processing units most critical in AI, which demand unprecedented levels of power and require more robust converters.

At UW-Madison, Costinett will continue that work as a member of the Wisconsin Electric Machines and Power Electronics Consortium (WEMPEC). He hopes to collaborate with his colleagues on large-scale projects, bringing his expertise to the group. "I'm kind of the guy who fills out the microelectronics and circuit design end of things," he says. "I think my role at WEMPEC will be somewhat comparable."

While Costinett is excited to join broader research efforts at UW-Madison, he's equally interested in WEMPEC's historic relationship with industry. He hopes to engage more deeply with colleagues in the electrical engineering field and get involved with training the next generation of power electronics engineers. "I'm really hoping to continue the legacy of WEMPEC and that close collaboration with industry, seeing what its needs are and seeing how we can help them address those needs," he says. "And I'd like to make sure we're still generating strong students who serve the needs of industry and serve the needs of the state."



Excerpts from "Focus on new Faculty" article by Jason Daley, UW-Madison

**IT'S A NEW SEMESTER! WELCOME,
NEW
WEMPEC STUDENTS!**



Adam Mukahhal (MS)



Agostino Russo (PhD)



Angel Hernandez (MS)



Avinash Arya (PhD)



Benjamin Prunuske (MS)



Dave Oteman (PhD)



Gopi Reddy Chilukuri
(MS)

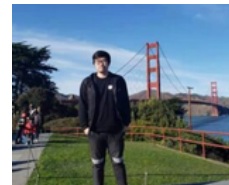


Seungmin Shin (PhD)

**...AND WELCOME
POSTDOCS!**



Pratyush Pandey



Jingjie Wu

**SAVE THE DATE!
2027 ANNUAL REVIEW - MAY 12-13**