



# 37<sup>th</sup> WEMPEC Annual Review Meeting

Tuesday & Wednesday, May 15 & May 16, 2018  
University of Wisconsin-Madison, 1800 Engineering Hall  
1415 Engineering Drive, Madison, WI

## Monday, May 14, 2018

7:00– 9:00 PM **Informal Gathering**– *Union South SETT Pub*

## Tuesday, May 15, 2018

7:15 *Registration/Breakfast*

8:00 Welcome Remarks: Rebecca Blank  
UW Chancellor

8:05 Welcome Remarks: Ian Robertson  
Dean of the College of Engineering

8:10 Opening Comments  
Prof. Tom Jahns  
Prof. Bob Lorenz

8:20 WEMPEC Update, Education and Research  
Jim Sember

### **Technical Presentations**

- 8:30 Prof. Eric Severson – Lose Your Bearings:  
Opportunities with Magnetically Suspended Motor  
Shafts
- 9:20 Prof. Dan Ludois – Ludois Group Happenings
- 9:50 Aditya Ghule – Electrostatic Drives {Poster No. 27}
- 10:10 Andy Schroedermeier – dv/dt Filters Integrated in Bus  
Bars {Poster No. 01}
- 10:30 *Refreshment Break – 20 min.*
- 10:50 Prof. Bulent Sarlioglu – Research Overview
- 11:20 Susie Wooyoung Choi – Multi-Functional Grid-  
Connected Inverter for Power Quality Improvement  
{Poster No. 32}
- 11:40 Matt Woongkul Lee – Torque Ripple Minimization and  
Vibration Measurements in Single-Phase BLDC  
Motors using a GaN-HEMT-based Motor Drive  
{Poster No. 04}
- 12:00 *Lunch*
- 1:15 WEMPEC Emeritus Group (WEG)  
Prof. Don Novotny
- 1:20 Distance Learning Graduate Program and Short Course  
Program, Daryl Harrison, Program Coordinator, EPD
- 1:30 Technology Licensing  
Michael Carey, Licensing Assoc., WARF
- 1:40 Prof. Giri Venkataramanan – Research Overview
- 2:10 Michael Rios – Characterization of Foil Wound  
Armatures for Permanent Magnet Machines {Poster  
No. 16}

2:30 Ashray Manur – Dynamic Modeling of Smart  
Microgrids {Poster No. 12}

### 2:50 – 5:00 **Poster Presentations/Laboratory Demos**

- |  |   |
|--|---|
| <input type="checkbox"/> Novel electric machines                                   | <input type="checkbox"/> Integrated power modules                           |
| <input type="checkbox"/> Surface & interior PM machines                            | <input type="checkbox"/> Distributed generation and<br>microgrids           |
| <input type="checkbox"/> Plug-in hybrid & battery electric<br>vehicle technologies | <input type="checkbox"/> Active control of power<br>devices for reliability |
| <input type="checkbox"/> Battery monitoring &<br>management                        | <input type="checkbox"/> Self-sensing motion control                        |
| <input type="checkbox"/> High voltage power converters                             | <input type="checkbox"/> Modular motor drive                                |
| <input type="checkbox"/> Novel drive control techniques                            | <input type="checkbox"/> Sensor integration in power<br>electronics         |
| <input type="checkbox"/> Power conversion for renewable<br>energy                  | <input type="checkbox"/> Wireless power transfer                            |
| <input type="checkbox"/> Wisconsin Energy Institute                                | <input type="checkbox"/> Wide bandgap devices                               |
|  | <input type="checkbox"/> <i>And more...</i>                                 |

5:00 – 6:30 **Reception** – Mechanical Engineering Lobby  
Sponsored by WARF

## Wednesday, May 16, 2018

7:15 *Registration/Breakfast*

8:00 Prof. Tom Lipo – Comparison of Torque Capability of  
AC Machines

8:50 Jianyang Liu – Synchronous Machine Field Excitation  
Utilizing a Single Phase Matrix Converter Excited  
Rotary Transformer {Poster No. B-03}

9:10 Prof. Tom Jahns – Pushing the Limits: From  
Integrated Motor Drives to Distributed Energy Systems

9:40 Adam Shea – Distributed Vector Control of High-  
Performance, Fault-Tolerant Modular PM Machine  
Drives {Poster No. 08}

10:00 Dinesh Pattabiraman – Grid-Forming vs. Grid-  
Following control for Power Systems with High  
Inverter Penetration {Poster No. WEI-03}

10:20 *Refreshment Break – 30 min.*

10:50 Prof. Bob Lorenz – Controls and Sensor Technology

11:20 Ruxiu Zhao – Li-Ion Battery Rate of Degradation and  
Control {Poster No. WEI-02}

11:40 Kang Wang – Parameter Estimation in DBDTFC-IM  
Drives Using Back EMF Self-Sensing {Poster No. B-  
06a}

12:00 *Lunch*

1:00 – 3:30 **Poster Presentations/Laboratory Demos**

*See Tuesday afternoon list above for details.*