



36th WEMPEC Annual Review Meeting
Tuesday & Wednesday, May 16 & May 17, 2017
University of Wisconsin-Madison, 1800 Engineering Hall
1415 Engineering Drive, Madison, WI

Monday, May 15, 2017

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

Tuesday, May 16, 2017

7:15 *Registration/Breakfast*

8:00 Welcome Remarks: Steve Ackerman
Associate Vice Chancellor for Research and Graduate Education

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

8:10 Opening Comments
Tom Jahns
Bob Lorenz

8:25 WEMPEC Update, Education and Research
Jim Sember

Technical Presentations

9:00 Mahima Gupta – DC Link AC to AC Converters with only Decoupling Capacitors on the DC Bus with no Over Voltage Penalty

9:20 Wenbo Liu – Alternating Flux Barrier Design of Vernier Ferrite Magnet Machine Having High Torque Density

9:40 Apoorva Athavale – Magnetization State Estimation and Control in Variable Flux PM Machines

10:00 Silong Li – Effect of Temperature Variation on Performance of Permanent Magnet Machines

10:20 *Refreshment Break*

10:40 Baoyun Ge – 3D Printed Electrostatic Machines

11:00 Phil Hart – Reduced-Order Modeling of Large Inverter-Based Distributed Generation Systems

11:20 Michael Rios – Characterization of Foil Wound Armatures in Electric Machines

11:40 Zhentao Du – Reduction of Rare Earth Magnet Materials in IPM Machines

12:00 *Lunch*

1:15 WEMPEC Emeritus Group (WEG)
Don Novotny

1:20 Distance Learning Graduate Program and Short Course Program, Lee DeBaille, Program Director, EPD

1:30 Technology Licensing
Michael Carey, Licensing Assoc., WARF

1:40 Huthaifa Flieh – Accurate Transient Loss Measurements using a Dynamic Shaft Torque Observer

2:00 Yingjie Li – Integration of Axial-Flow Compression into Electric Machines

2:20 Kevin Frankforter – Hybrid Battery/Ultracapacitor Energy Storage Devices with Tunable Energy/Power Characteristics

2:40 – 5:00 Poster Presentations/Laboratory Demos

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

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

Wednesday, May 17, 2017

7:15 *Registration/Breakfast*

8:00 Prof. Bulent Sarlioglu – High-Speed Electric Machines and the Benefits of Si-C Inverters

9:00 Prof. Dan Ludois – Accelerating the S-Curve by Merging the Old and the New

10:00 *Refreshment Break*

10:30 WEMPEC Faculty Q & A Forum – The Interaction of Machines, Power Electronics, and Controls

12:00 *Lunch*

1:00 – 3:30 **Poster Presentations/Laboratory Demos**
See Tuesday afternoon list above for details.