39th WEMPEC Annual Review Meeting
Tuesday & Wednesday, May 12 & May 13, 2020
University of Wisconsin-Madison, 1800 Engineering Hall
1415 Engineering Drive, Madison, WI

Monday, May 11, 2020
7:00 – 9:00 PM Informal Gathering – Union South

Tuesday, May 12, 2020
7:15 Registration/Breakfast
8:00 Welcome Remarks: Ian Robertson
Dean of the College of Engineering
8:05 Prof. Don Novotny – Founder’s Comments
8:10 Prof. Tom Jahns – Opening Comments
8:20 Jim Sember – WEMPEC Update

Technical Presentations
8:30 Tutorial: Prof. Bulent Sarlioglu – Unleashing the Power of Wide-Bandgap Switches in New Inverter Designs
9:25 Pablo Castro Palavicino – Analysis and Detection of Inter-Turn Short Circuits in IPM-SMs.
9:45 Dheeraj Bobba – Design and Field Weakening Operation of Hybrid Rotor PMSM – A Unified Model for Synchronous AC Machines
10:05 Refreshment Break – 20 min.
11:20 Hang Dai – Application of Wide-Bandgap Switches to Integrated Motor Drives using Current-Source Inverters
11:40 Dinesh Pattabiraman – Grid-Forming Inverters and their Role in Stabilizing Future Power Systems
12:00 Lunch
1:00 Ed Borbely, Associate Dean for Engineering Professional Development
1:10 Tutorial: Prof. Dan Ludois – Capacitively-Coupled Excitation Systems
2:10 Max Liben – Torroidally-Wound Ring Motors for Rim-Driven Rotorcraft Thrusters
2:30 Peter Killeen – Current Source Inverters for Electrostatic Drives

2:50 – 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

Wednesday, May 13, 2020
7:15 Registration/Breakfast
8:00 Tutorial: Prof. Eric Severson – Magnetic Levitation for Electric Motors
9:00 Nick Hemenway – Advanced Three Pole Magnetic Bearings
9:20 Ashad Farhan & Martin Johnson – Ultra High Speed Bearingless Machine Challenges and Solutions
9:40 Refreshment Break – 30 min
10:10 Tutorial: Prof. Giri Venkataramanan – Analytical Tools to Predict EMI
11:10 Sandhya Srinivas – Modeling and Simulation of Saturation in Permanent Magnet Machines
11:30 Peter Meyer – Modeling and Mitigation of Simultaneous Switching Events in Inverters
11:50 Lunch
1:00 – 3:30 Poster Presentations/Laboratory Demos
See Tuesday afternoon list above for details.