



Madison Section Newsletter

Vol. 22, No. 7 ;

Serving IEEE Members of South Central Wisconsin

July 2019

Newsletters are archived online at [IEEE-Madison](#)

Upcoming Meetings

International Future Energy Challenge Student E-Bike Finals Spectators and Volunteers Needed

Dates: Monday, July 29th to July 31st
UW-Madison College of Engineering

[Event Info](#)

News/Announcements

PES/IAS Chapter Event -- Wireless Transmission!

Volunteers Needed! See below for more information

Past Meeting Reviews

Review of June ECN Meeting

Upcoming Meetings

July International Energy Challenge: E-Bike Competition



- Monday, July 29th through July 31st
- Student E-Bike Design Competition
- Location:
UW-Madison College of Engineering

- Volunteers Needed: Please Register at the IEEE-Madison [event page](#).

Spectators and Volunteers Wanted for the E-Drive for a Bicycle

IFEC is an international student competition for innovation, conservation, and effective use of electrical energy, which is open to college and university student teams from recognized undergraduate engineering programs in any location. The following International University Teams will be competing:

Delhi Technological University
DHBW-Stuttgart
Drexel University
Gottfried Wilhelm Leibniz Universität Hannover
Khalifa University of Science and Technology
National Ilan University
Tsinghua University
University of Belgrade
Utah State University
Virginia Tech

Prizes:

There will be a Grand Prize of \$10,000 and three additional awards granted at \$5,000, \$3,000 and \$1,000 each. Competition will include design aspects, dynamometer testing and riding on race-track.

Specification:

Input: 48V dc nominal from specified 9Ah battery pack.
Output: 3-phase BLDC motor drive; Vout: 36V; Pout: 500W; variable speed.
Power Density: >1.5 W/cm³ without fan.
Converter temperature rise < 40°C with 500W @ 25°C Ambient Temperature.
Judgment criteria will include energy consumption for a typical drive cycles.

Events for the E-bike Competition

Sunday, July 28th

6:00 to 8:00 PM Reception at UW-Memorial Union, 800 Langdon Street

Monday, July 29th at UW-Makerspace, 215 N. Randall Avenue

7:30-9:30 AM Welcome and Tour of Makerspace
9:30 to 11:30 AM Team "Elevator Pitches"
12:00 to 4:00 PM Functional Tests

Tuesday, July 30th at UW-Makerspace, 215 N. Randall Avenue

8:00 AM to 4:00 PM Efficiency Map and Hill Climb

Wednesday, July 31st

8:00 AM to 4:00 PM Field Test on Lawn adjacent to Lot 17
5:30 PM to 8:00 PM Award Banquet at Union South, 1308 W. Dayton Street

IEEE Volunteers Needed to help with the Event! Please Register

Reviews of Past Meetings

Review of June ECN Meeting: "Packaging SoCs"

The ECN meeting started with a short "meet and greet" introduction followed by more detailed discussions of SoC packaging issues. Dennis Bahr showed his novel packaging of a Raspberry Pi Zero system for blood pressure monitoring. He has built a system that uses a bare-metal boot process to boot his real-time operating system (RTOS) and compiled code. Dennis uses open-sourced GNU based compilers for the RTOS and application. He also displayed a Raspberry Pi board that supports up to four stepper motors and interprets g-code to drive CNC applications. Jack Kisslinger discussed his SoC based system and also showed a "hot-plate" thermal controller to test the thermal limits of a fabricated board.

Tom Kaminski gave a formal presentation and demonstration of several different packaging options for the Raspberry Pi zero and Pi 3Plus. He also displayed a SoC packaged on a "back-plane" using the Beagle Bone Black that replaced a PC and ISA card for a Raman Spectroscopy system. His detailed presentation slides are available [here](#).

News/Announcements

- **Volunteers Needed:** Are you interested in volunteering? If so, IEEE Madison is looking for a few people interested in a few exciting new volunteer positions. First, the Executive Committee is looking to fill a new position of auditor. This position will work with the Treasurer and the Executive Committee to review all expenditures and ensure that IEEE Madison remains compliant with all IEEE policies and procedures, as well as applicable laws. The auditor will also serve on the Finance and Audit committee. If you are interested and wondering how much time this volunteer position will require, it is estimated that it will be at most a couple hours per month. If you are interested, please contact Nathan Toth, IEEE Madison Section Chair, at tothnj@ieee.org.

Secondly, IEEE Madison will be forming an Ethics Committee. The purpose of the Ethics Committee will be to foster awareness of ethical issues, promote ethical behavior among members of IEEE Madison, and advise the Executive Committee on IEEE Ethics policy and concerns. The Ethics Committee will consist of 3 or more members of IEEE. For those interested in volunteering for the ethics committee, please contact Nathan Toth, IEEE Madison Section Chair, at tothnj@ieee.org. The time commitment for this committee will be approximately 2 hours per month.

Volunteering for IEEE Madison helps to grow a community of engineers, scientists, and technologists in the Madison area.

If you are interested in any of the above positions or are interested in volunteering for any other position or task, please contact Nathan Toth at tothnj@ieee.org.

- **IAS/PES Chapter Late Summer/Early Fall Event:** Dan Ludois, Chair of the Joint IAS/PES Chapter sends this note:
 "I've finally got the facilities at UW allow me roof access for my large scale wireless power transfer demonstration. I'll be working on coil placement for the rest of the summer with early testing occurring in late July. It should make for a VERY interesting and photogenic chapter meeting this late summer / early fall."
 Stay tuned for more information!

IEEE Madison Leadership

- Section Chair - Nate Toth
- Section Vice Chair - Hugh Schmidt
- Section Treasurer - Tom Kaminski
- Section Secretary - Mike Stemper
- Webmaster - Nate Toth
- PES/IAS Chair - Dan Ludois
- PES/IAS Vice Chair - Eric Severson
- PES/IAS Secretary/Treasurer- Mike Stemper
- EMB Chapter Chair - Dennis Bahr
- Life Member Affinity Group Chair - San Rotter
- Life Member Affinity Group Vice Chair - Charles Cowie
- ECN Chair - Tom Kaminski
- Young Professionals Chair - Nate Toth
- Members at Large: Clark Johnson, Craig Heilman, Dennis Bahr, San Rotter.

Membership Upgrades

Those interested in upgrading their IEEE membership level should send their resumes or other information showing five years of significant performance in an IEEE-designated field to Charles J Gervasi via email at cj(at)cgervasi.com. Madison Section Board will attempt to find Senior IEEE members knowledgeable in the applicant's area of practice who may be able to provide references. You are invited to attend the informal networking portion of the monthly Section meetings (starting at 11:30am) to meet the Section Board members and discuss intentions.

The Institute of Electrical and Electronics Engineers or IEEE (read Eye-Triple-E) is an international non-profit, professional organization dedicated to advancing technology innovation and excellence for the betterment of humanity. IEEE and its members inspire a global community through IEEE's highly cited publications, conferences, technology standards, and professional and educational activities. It has the most members of any technical professional organization in the world, with more than 300,000 members in around 150 countries. The IEEE consists of 38 societies, organized around specialized technical fields, with more than 300 local organizations that hold regular meetings. Discover what IEEE Member Discounts can offer you. The Member Discounts portfolio consists of insurance products and programs for the home, office and travel, all at excellent group rates and reduced pricing. Visit IEEE Member Discounts to see what's available in your location and enjoy the savings. For more information, please visit: IEEE.ORG.

IEEE members **save big.**

Get discounts on:

Technology Home/Office
Travel Insurance

LEARN MORE 

Madison Section : <http://sites.ieee.org/msn/>

Manage your IEEE Communication Preferences at the [IEEE Privacy Portal](#)