

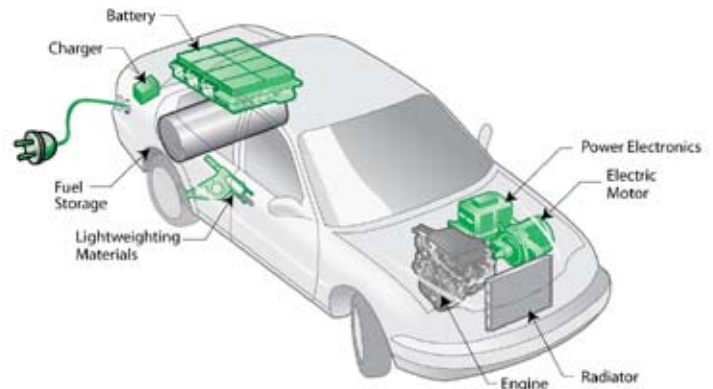


## State of the Art in Plug-in Hybrid Electric Vehicle Electric Machines, Batteries and Power Electronics

- Date/Time:** Friday, February 16, 2007, 11:45 AM - 1:00 PM (NOTE: this is the third FRIDAY of the month, not Thursday)
- Speaker:** Theodore P. Bohn, Researcher, Argonne National Laboratory's Center for Transportation Research
- Location:** Rocky Rococo's Pizza, 7952 Tree Lane (Madison Beltline Hwy. at Mineral Pt. Rd.), 608.829.1444
- Menu:** Pizza buffet, salad and soft drinks (cost \$10.00, free for student members)
- RSVP:** by February 13th to Les Schroeder via e-mail (l.schroeder@ieee.org) or call 608.224.0664

*Non-member guests are always welcome!*

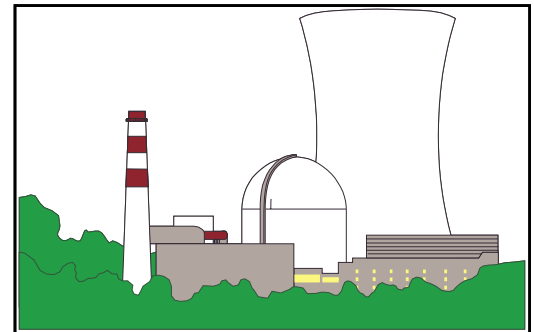
Electric vehicles have been a part of the American transportation landscape for over a century now. Hybrid vehicles have also come and gone in various forms, having recently been hailed as a bridge to 'the next transportation paradigm'. So called 'Plug-in Hybrid Vehicles' have also recently moved into the spotlight as research has shifted to affordable, reliable, large capacity electrical energy storage with the key goal of displacing imported petroleum with electricity from 'other sources.' These other sources may be carbon free renewable energy (wind, solar, hydro, etc), or night-valley load leveling of conventional coal fired electrical plants. This presentation discusses the (recent) history, benefits and challenges of plug-in hybrid approaches as well as state of the art in the required components.



As an alumnus of UW-Madison, Ted Bohn has been an electrical engineer at Argonne National Laboratory's Center for Transportation Research for the past 8 years. Prior to this role, he worked as a consultant to automotive OEMs and Columbia ParCar, as well as a role as Technical Specialist designing experimental apparatus at Fermi National Accelerator Laboratory. He and his colleagues at Argonne Lab investigate limitations of advanced powertrain topologies and examine opportunities to exploit advantages of new technologies applied to hybrid vehicles. He also has the fortune of being a visiting scholar at UW-Madison and works closely with the faculty and WEMPEC students on research associated with hybrid vehicle electric machines and power electronics. Many of you who know him can identify with his passion for sustainability and renewable energy issues.

## Tour the University of Wisconsin Nuclear Reactor

- Date/Time:** Monday, March 19, 2007, 1:00 - 2:00 PM (NOTE: this is the third MONDAY of the month, not Thursday)
- Speaker:** Prof. Todd Allen, UW Department of Engineering Physics
- Location:** Univ of Wisc-Mechanical Engineering Building Room 101  
1513 University Ave.  
Reactor Supervisor's phone: 608-262-3392  
Meet in the lobby of the Mechanical Engineering Building, across from Lot 17
- Parking:** There is visitor parking available at Lot 17 - \$3.50 for a half day pass.  
**CAR POOLING IS ENCOURAGED!**
- Menu:** Lunch will not be provided with this tour, but an announcement will be made of a location for the tour group to meet up informally.
- RSVP:** by March 1st to Les Schroeder via e-mail (l.schroeder@ieee.org) or call 608.224.0664  
NOTE: this tour is limited to 30 persons and you must provide your name and organization for a security check when RSVPing!



*Non-member guests are always welcome!*



## Upcoming 2006 Short Courses for Engineers and Other Technical Professionals

- **The Engineer in Transition to Management**  
*February 19–21, 2007 in Las Vegas, NV*
- **Introduction to Right-of-Way for Utility Engineers, Technicians and Managers**  
*February 20–21, 2007 in Las Vegas, NV*
- **Land Surveying for Non-Surveyors**  
*February 22, 2007 in Las Vegas, NV*
- **Introduction to Planning and Designing Fiber to the Premises**  
*March 13–14, 2007 in Las Vegas, NV*
- **Modern Wireless Data Communications**  
*March 20–22, 2007 in Madison, WI*
- **Safety Code Compliance for Outside Plant Communications Facilities**  
*March 27–29, 2007 in Madison, WI*

For further information...

Web: [epd.engr.wisc.edu](http://epd.engr.wisc.edu) or E-mail: [danbeck@engr.wisc.edu](mailto:danbeck@engr.wisc.edu)  
College of Engineering Department of Engineering Professional Development

## IEEE MADISON SECTION NEWSLETTER

Published 9 times per year (Jan. - May & Sep. - Dec.) by the Madison, Wisconsin Section of the Institute of Electrical and Electronic Engineers (IEEE), as a service to its members in south-central Wisconsin.

Printing and mailing by: SprintPrint  
2790 S. Fish Hatchery Rd.  
Madison, WI 53711

Mailed at Madison, Wisconsin as 3rd Class, Non-Profit postage. Permit No. 953.

Online at <http://www.bugsoft.com/ieee/>

For address changes: notify IEEE headquarters, [address-change@ieee.org](mailto:address-change@ieee.org) or <http://www.ieee.org>

For advertising information:  
contact John Hicks, [jhicks@wisc.edu](mailto:jhicks@wisc.edu), 608.233.4875

For editorial comment:  
contact Craig Heilman, [cheilman@ieee.org](mailto:cheilman@ieee.org), 608.424.6860

Permission to copy without fee all or part of any material without a copyright notice is granted provided that the copies are not made or distributed for direct commercial advantage, and the title of the publication and its date appear on each copy. To copy material with a copyright notice requires specific permission. Please direct all inquiries or requests to IEEE Copyrights Office.

Note: Attendees will need to provide Government Identification (Wisconsin driver's license or passport) in order to tour the Reactor. The UW will do an advance check on all individuals attending, thus an early RSVP is required. These verifications are required and no last minute additions will be possible.

A renaissance in nuclear energy appears to be taking hold - over 30 new reactors are currently being considered for license applications and construction in the next 10-15 years. If completed, this would represent a 30% increase in the number of reactors and closer to 40% increase in installed capacity. The University of Wisconsin, Department of Engineering Physics, will host a tour of their reactor for the IEEE.

## Capital Science & Engineering Fair - Judges Needed!

On 3 March 2007, the Capital Science & Engineering Fair will be held in the Tong auditorium in the Engineering Centers Building on the UW-Madison campus. The Capital Science & Engineering Fair was established to provide high school students from South Central Wisconsin the opportunity to showcase their research ability. The fair hopes to inspire enthusiasm for science and engineering research among Wisconsin students and to provide a support system to assist them as they actively participate in science and engineering endeavors. Read more at <http://allen.neep.wisc.edu/sciencefair/>.

Judges for the event are needed! If you are interested, please let Asst. Prof. Todd Allen know. If you are interested but have conflicts with the date, there will also be a presentation training session and "mock judging" for the students on the afternoon of 10 Feb.

If you know of anyone else you think might be interested, please feel free to pass this request along.

Thanks.

Todd Allen  
608-265-4083  
[allen@engr.wisc.edu](mailto:allen@engr.wisc.edu)

## Valparaiso Wins Region 4's First Ethics Competition

By Michael J. Riezenman

To judge by recent headlines, we live in a world increasingly troubled by unethical behavior. All the more reason to applaud Region 4 (Central United States) for sponsoring a student ethics competition to promote awareness among engineering students of ethical concepts and challenges.

The contest was held 21 October at Valparaiso University, in Indiana, in conjunction with the Region 4 Student Branch Leadership Conference. A team of three senior engineering students from Valparaiso won the competition, earning it a US \$400 prize. Purdue University, in West Lafayette, Ind., came in second. Teams from four schools participated.

Holding the competition in parallel with the leadership conference wasn't an accident. "By having concurrent sessions, we made it impossible for the branch leadership both to attend the leadership sessions and take part in the competition themselves," said Member Anu A. Gokhale, a professor of electronics and telecommunications at Illinois

State University, in Normal, and the region's IEEE student activities chair. "This meant the student leaders had to fulfill their primary mission as leaders and motivate others to participate in the ethics program."

**CASE STUDY** The ethics competition centered on a fatal accident that "occurred" when a group of army troops removed a solid-propellant rocket from its packing case and then allowed it to get too close to a grounded metal antenna. The fuel in the missile ignited, burned through the rocket motor casing, and killed several troops. The culprit was found to be the sparks from an electrostatic charge build-up.

Ethical questions about the incident arise because one of the engineers who worked on the project years earlier realized that a rocket could be ignited in this way. He told his supervisor, and the two agreed that the likelihood of such an accident was remote. Moreover, there was no data to help them evaluate the probability of one occurring. Nevertheless, they shared their concerns with the project's military procurement officer, who agreed that the mechanism was possible, but unlikely. Moreover, the officer said that any design changes then would delay the missile's deployment.

---

*"The competition gave students an opportunity to apply the engineering profession's code of ethics to a situation that could happen in the workplace"*

---

Based on this scenario, the students had to answer a series of questions about the behavior of the people involved. The contestants were judged not only on the keenness of their analyses but also on factors such as how well they communicated their conclusions and how well their responses related to the IEEE Code of Ethics.

**WORKPLACE VALUE** How valuable are competitions like this? IEEE Member Richard Freeman, an assistant professor of electrical and computer engineering at Valparaiso, says the scenario forced students to address issues such as public safety and welfare, conflicts of interest, and ethical dilemmas related to faulty engineering practice. "The competition gave students an opportunity to apply the engineering profession's code of ethics to a situation that could happen in the workplace," Freeman says.

But Elizabeth Racop, a member of the winning team and an electrical engineering student, had a somewhat different view of the competition's value. She believes that people handle ethical dilemmas on the basis of their moral values and upbringing. The value of the competition, she says, is more as an attention-getting device: it makes the participants (and onlookers) aware

that there are ethical dilemmas that need attention in the first place.

For more information about the ethics competition program, visit <http://www.ieee.org/portal/pages/committee/emcc/competition.html>.

## 2nd Intl. Conference on Global Software Engineering (ICGSE) - Call for papers

The globalization of software development is pervasive in today's IT and software industry. The diversity of culture and communication and the dispersion over time and space require novel techniques, tools, and practices from many disciplines to overcome numerous difficulties and to take advantage of rare opportunities such environments entail.



Experts in  
*Medical Device Testing*  
since 1983.

### **Comprehensive**

We provide EMC and Safety testing for many global standards, including FDA requirements and Medical Device Directive.



### **Knowledgeable**

Our NARTE certified test engineers know the latest changes in U.S. and global standards for medical devices.



### **Dependable**

We provide problem solving and mitigation throughout testing at no extra cost to ensure your product meets applicable standards.



### **Flexible**

We work hard to meet your scheduling needs, ensuring speed to market and saving you time and money.

1250 Peterson Drive, Wheeling, IL 60090  
166 South Carter Street, Genoa City, WI 53128  
[www.dlsemc.com](http://www.dlsemc.com) 847-537-6400

The International Conference on Global Software Engineering (ICGSE) will bring together researchers and practitioners to explore the state-of-the art in global software development. The previous conference (sponsored by the IEEE) held in 2006 attracted a wide and vigorous participation from industry and academia.

The ICGSE 2007 conference includes:

- Technical Conference
- Tutorials
- Workshops

The deadline for submissions in all three categories is Feb. 15, 2007

All information summarizing the conference series as well as the Call for Papers, Tutorial Proposals and Workshop Proposals can be found in the combined PDF at <<http://www.inf.pucrs.br/icgse/materials/icgse-2007-cfp.pdf>>.

Additional details and updates can be found on the conference page: <<http://www.icgse.org>>.

## Programmer Quotes

"If builders built buildings the way programmers wrote programs, then the first woodpecker that came along would destroy civilisation."  
— Gerald Weinberg

"There are only two industries that refer to their customers as "users""  
— Edward Tufte



Reach over 700 IEEE members in South-Central Wisconsin with information on your products and services every month with an ad in this newsletter.

Our members have professional interests in computers, power engineering, signal processing, communications, industry applications and a number of other technical fields.

For more information, contact John Hicks at (608) 233-4875 or [jhicks@wisc.edu](mailto:jhicks@wisc.edu).

Per issue ad rates:	1 Time	2 Times	5 Times	9 Times
Business Card	\$ 50	45	42	41
2-Business Card	83	76	71	70
1/4 Page	145	135	129	127
1/2 Page	215	203	195	193
Full Page	330	315	306	303

*Programmer Quotes*

*for papers  
neering (ICGSE) - Call  
Global Software Engi-  
2nd Intl. Conference on*

*titon  
's First Ethics Compe-  
Valparaiso Wins Region*

*Needed!  
gineering Fair - Judges  
Capital Science & En-*

*Meeting Notices*

**WHAT'S INSIDE**

2790 S. Fish Hatchery  
Madison, WI 53711



NONPROFIT ORG.  
U.S. POSTAGE  
**PAID**  
Madison, WI  
Permit No. 953