

# THE REPORTER

Journal of the Central-Indiana Section • IEEE

## Fourth Graders at Cumberland Road Elementary School Shake It Up with Seismographs

by Brad Snodgrass

Students in Mrs. Strnat's Fourth Grade REACH Class built their own seismographs to wrap-up recent lessons on earth sciences. Meg Strnat is a second year grant recipient in the Central Indiana Section Teacher Grants initiative. Last year, her students redesigned the computer mouse as part of the "Eek! A Mouse!" Lesson.

### Quotes from Mrs. Strnat's 4th Graders

#### Kids Recognize Cool Aspects of Their Designs

- Hung the paper by string—Rachel
- Used Play-Doh so paper wouldn't move around—Ben
- Used Play-Doh to get height to take care of the pencil—Matthew
- Wrapped wire around pencil making it springy so that it wrote during an earthquake—Ashlyn
- Used duct tape to support everything so things wouldn't fall apart—Hannah
- Cut cardboard as walls so pencil wouldn't fly around—Balint

#### They Recognize What Needs to Be Fixed

- Couldn't get the pencil to touch the paper—Daniel
- Needed weight on our pencil—Anni
- Our Play-Doh was falling apart; next time use clay—Ben N.
- Too much weight on top so add Play-Doh to support—Anushay
- The pencil kept swerving off course—Nate



Why Teamwork?

- Completed faster—Lauren
- We got to give different people different jobs—Sam
- We found a way to put all of our ideas together—Kaleigh
- Not as much stress or work—Tres
- When we had trouble building it, teammates could help us—Teddy



“Shake It Up with Seismographs” is one of a collection of free lesson plans available from TryEngineering. These lessons cover a wide variety of subject areas using an open-ended project based environment. Lesson plans are provided free of charge and are designed for classroom implementation for under \$100 in supplies. All lessons are aligned to national standards.

To learn more about TISP and Teacher Grants, contact Brad Snodgrass at [bsnodgrass@ieee.org](mailto:bsnodgrass@ieee.org).

Central Indiana Section established its TISP in 2006 and has presented programs for Pike and Warren Township schools in Indianapolis, and for the Brownsburg Challenger Center. Central Indiana Section has been widely recognized for TISP efforts and actively supports IEEE sections throughout the country, and the world, to establish their own TISPs.

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## ***How Do You Communicate??***

Want to know what is happening in Central Indiana Section? Don't know where to look? Already inundated with E-Notices? Need to ask a question? Want to find an expert? Get a meeting idea?

Here are some of many communication channels available in Central Indiana Section



Find the Central Indiana Engineering Consultants' Network and the Central Indiana Section Communications Society, as well as several other IEEE related organizations on LinkedIn.



Student Branch members are encouraged to join “CIS-IEEE Student Branches” group on Facebook. Several opportunities for students and student branches have been posted there. The Facebook group also provides an opportunity for CIS student members to interact or to make contact with student members outside of Central Indiana. There is no substitute for a good network, but be aware that some hiring managers are also checking these sites.

Communications Society members can find “COMSOC – Central Indiana Section” on Facebook.

### **CIS Home Pages**

Start with the main site. ([www.cis-ieee.org](http://www.cis-ieee.org)) Check out the calendar of events, or link to the many IEEE groups in Central Indiana Section, including all of the Student Branches.

### **E-Notices**

Not getting E-Notices? E-Notices are not only a resource for keeping in touch with the activities throughout CIS, but you will also receive information on topics of interest throughout IEEE

Login to myIEEE from the IEEE Home Page ([www.ieee.org](http://www.ieee.org)) and sign-up! with the main site. ([www.cis-ieee.org](http://www.cis-ieee.org)) Check out the calendar of events,

# Power & Energy and Industry Applications Societies Spring Activities

by Earl Hill, Chair PES-IAS

## **PHEV Meeting**

In January, the PES-IAS held a seminar on plug-in hybrid electric vehicles (PHEV). PHEV use a combination of battery-powered electric motors and a gasoline engine to drive the vehicle. The batteries are continually being charged during gasoline operation, and can also be charged from the grid when the vehicle is at rest. As a result, the PHEV has significantly better gas mileage than standard vehicles.

PHEVs are one the “new big things” in the world of electricity. Rather than exclusively using fossil fuels for transportation, the PHEV enables drivers to use electricity (at most speeds) as well. This reduces dependency on imported fossil fuels (such as oil) and presents an opportunity to use renewable energy to charge the vehicle. PHEV may also be used to supply the grid when the car is not in use (although this feature is still several years away). Ideally, the PHEV would connect to the grid during the workday, and supply power during peak hours. Lastly, a conversion from oil to electricity will be good news for anyone in the power industry.

We had two speakers – Mr. Mike Dvorak, Director, Special Projects, Indianapolis Power & Light and Dr. Sohel Anwar, Associate Professor, Dept. of Mechanical Engineering; IUPUI. Mr. Dvorak discussed the overall development of the PHEV, while Dr. Anwar discussed the technical aspects of the PHEV drive system and details of the PHEV conversion.

IPL with assistance from IUPUI had converted a standard hybrid Prius into a plug-in hybrid. This vehicle was available for inspection following the meeting. The Prius uses a 240 V “plug” and requires a few hours to recharge. At this point, no software exists for allowing the Prius to supply the grid.

## **Webinar on Wireless for Digital Process Control Automation**

In February, the PES-IAS decided to hold a slightly different type of event. Originally, a seminar on Wireless SCADA Applications was going to be held at IPL. However, in view of the predicted inclement weather, it was decided a webinar would be a better choice. The webinar involve use of webinar software for the presentation (no video) and a phone bridge for the audio portion.

Mr. Sam Kincaid, of ERS Data Solutions, and the chair of the new CIS Communications Society Chapter, was the presenter and discussed general aspects of the use of wireless communication, including the standards and technologies in use. Over the years, ERS Data Solutions has built a number of SCADA (system control and data acquisition). Sam spoke about these applications, as well as providing a good background on how wireless technology works.

This was the first webinar held by PES-IAS. Anyone who attended this webinar is invited to provide comments to PES-IAS Chair Earl Hill ([eshill@loma-consulting.com](mailto:eshill@loma-consulting.com)). If the webinar was well received (and early indication is that it was), the PES-IAS will consider webinars in the future. These meetings are not meant to take the place of face-to-face meetings, but can be used during bad weather, and for other occasions as well.



## CIS-IEEE Continues Teacher Grants for 2010

### Teachers Reimbursed for up to \$100 of Classroom Expenses

The Central Indiana Section of the IEEE (pronounced Eye-triple-E) is encouraging area teachers to utilize the large selection of free lesson plans available at [TryEngineering.org](http://TryEngineering.org). Lessons focus on Science, Technology, Engineering, and Math and are designed for classroom presentation for under \$100.

#### Eligibility

- School must be located within the CIS-IEEE geographical area
- A lesson from [www.tryengineering.org](http://www.tryengineering.org) must be chosen
- The lesson must be presented by the classroom teacher. (Not by an IEEE Volunteer)

Teachers may determine geographic eligibility by reviewing Article I, Section 2 of the CIS Bylaws at:  
<http://www.cis-ieee.org/bylaws.asp>

#### Applying for a Grant

Central Indiana Section (CIS) will reimburse costs for presentation of an eligible lesson up to the \$100 limit. Teachers should first get a pre-approval for the reimbursement by supplying the information requested below. Pre-approved lessons will be given an address for submittal of related lesson expenses, up to the \$100 limit.

To apply, send an email with the following information to Brad Snodgrass at [bsnodgrass@ieee.org](mailto:bsnodgrass@ieee.org)

- Name and address of the School
- Teacher sponsoring the lesson
- Grade level(s) targeted for the lesson
- Name of person who will be presenting the lesson
- Date lesson will be presented
- Name of the lesson that will be presented.

#### Questions

Send questions or requests to Brad Snodgrass at [bsnodgrass@ieee.org](mailto:bsnodgrass@ieee.org). Brad coordinates Pre-University Activities for the Central Indiana Section of IEEE.

#### About the IEEE

The IEEE is the world's leading professional association for the advancement of technology. With more than 350,000 members worldwide, IEEE is the largest technical society in the world. The IEEE is a leading authority on a broad range of topics including aerospace systems, computers, telecommunications, robotics, nanotechnology, biomedical engineering, electric power, consumer electronics, and many others.

Central Indiana Section (CIS) of the IEEE is the local organization supporting the nearly 2000 IEEE members in central Indiana.

#### About the Teacher In-Service Program

The Teacher In-Service Program (TISP) features IEEE Section volunteers developing and presenting technologically oriented subject matter to local K-12 educators in an in-service or professional development setting. TISP allows IEEE volunteers to share their technical expertise and to demonstrate the application of engineering concepts to support the teaching and learning of science, mathematics and technology disciplines.

To schedule a TISP Presentation for your school, contact Brad Snodgrass at [bsnodgrass@ieee.org](mailto:bsnodgrass@ieee.org).

#### IEEE Resources for Students and Teachers

<http://www.cis-ieee.org/>

<http://www.ieee.org/web/aboutus/home/index.html>

<http://www.ieee.org/web/education/home/index.html>

<http://www.ieee.org/web/education/preuniversity/tispt/index.html>



*For Immediate Release*

D.L.S. Names Mitch Gaudyn Conformity Assessment Manager



D.L.S. Electronic Systems, Inc. in Wheeling, IL names Mitch Gaudyn Manager of their Conformity Assessment Compliance Testing Group.

Mr. Gaudyn will oversee the day-to-day operations and management of the Product Safety testing arm of D.L.S., covering UL, CSA, CE, CCC, C Tick, BSMI and other global testing standards and requirements. Mr. Gaudyn comes from Charles Industries, where he has been the Product Manager for OSP Telecom and Other Electronic Products. For more information on D.L.S. and their global testing programs, go to [www.dlsemc.com](http://www.dlsemc.com) or call 847-537-6400.

## Learn to control signal return currents on PCB's

and learn how EMC and signal integrity are interrelated

using textbook by Dr. Bruce Archambeault of IBM

*"PCB Design for Real-World EMI Control"*

and videos showing simulation of current flowing on PCB's



Now part of Don Sweeney and Roger Swanberg's

### EMC by Your Design

#### An EMC Practical Applications Seminar and Workshop

with a free 45 min. individual product design evaluation,  
take home proprietary computer program,  
expanded chapter on filter design,  
and second textbook at no extra charge



April 15, 16, 19 & 20, 2010

Hilton Hotel, Northbrook, IL

**We are offering a special  
\$300 discount if you register by March 15, 2010**

### Classes fill quickly so register early

email [cgorowski@dlsemc.com](mailto:cgorowski@dlsemc.com) or call 847-537-6400  
[www.dlsemc.com/1001](http://www.dlsemc.com/1001)

## **VOLUNTEER OPPORTUNITIES**

The Central Indiana Section still needs help in a few areas. This is your opportunity to give back to an organization that has helped you in your career and a chance to network with your peers and gain recognition. The following positions are currently open:

- Fund Raising Chair
- Vice Chair
- Communications and Information Officer
- PACE Chair

Becoming an IEEE volunteer can be a gratifying and memorable experience. Whether your skills are suited for organizing conferences and meetings, fund raising, financial reporting, communicating or maintaining web sites, CIS can use your skills.

Additional opportunities for involvement include awards, educational activities and the development of new programs.

As an IEEE volunteer, you can take pride in participating in activities that interest you, while expanding your knowledge of the IEEE, gaining valuable management and leadership skills, and connecting with others in your profession.

If you are interested in serving in any of the above listed positions please contact any of the CIS officers listed near the end of this newsletter.

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### **Record Number of Entries as Central Indiana FIRST Robotics Teams Compete for \$500 CIS-IEEE Sponsorships**



As the 2010 FIRST Essay Contest is drawing to a close, a record number of entries have been recorded.

The FIRST Robotics Competition (FRC) challenges high school students to build a competitive robot during a six-week build season using a standard "kit of parts" and a common set of rules. The teams and robots then compete in games designed by Dean Kamen, Dr. Woodie Flowers, and a committee of engineers and other professionals. (<http://www.usfirst.org>). FIRST Robotics Competition (FRC) is a unique varsity sport of the mind designed to help high-school-aged young people discover how interesting and rewarding the life of engineers and researchers can be.

This year's essay contest challenged teams to find out what compelled one of their engineering mentors to become an engineer.

The winning essays will be printed in the next issue of The Reporter.

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# Future Power & Energy and Industry Applications Societies Spring Activities

by Earl Hill, Chair PES-IAS

## **Spring Short Course**

The PES-IAS has a wide variety of activities set for the spring of 2010. The next major event is the annual Spring Short Course. As in past years, the PES-IAS will offer a four-week course in the Safety Room at Indianapolis Power and Light's Morris Street location. This year's topic: "Design of Low Voltage Distribution Systems Including Protective Device Coordination and Arc-Flash Hazard Mitigation". The short course meets over four weeks. The following outlines the topics to be presented:

- Week 1 – Short circuit analysis, symmetrical components, and coordination.
- Week 2 – Coordination, common arc-flash hazard problems, and beginning design
- Week 3 – Designing to include coordination and arc-flash mitigation I
- Week 4 – Designing to include coordination and arc-flash mitigation II

The course will be presented by Dr. Fred Brockhurst, Professor Emeritus, Rose-Hulman Institute of Technology. Dr. Brockhurst has presented a number of courses over the years, which have always been well attended.

The PES-IAS will also offer eight professional development hours (PDH) for this course. The PDH will be documented in a certificate to be presented to each attendee. Lastly, the cost of the short course is as follows: \$60 for CIS-IEEE members, \$65 for sister Societies, \$70 for all other professionals, and \$6 for students. The classes start at 6:30 pm on the four Tuesdays in March. Registration is available at the website [www.cis-ieee.org](http://www.cis-ieee.org).

## **Awards Banquet**

Each year the PES-IAS presents awards to high achieving students at the three universities and institutes that offer electrical engineering degrees: Rose-Hulman, Purdue, and IUPUI. This year, the awards will be provided to seniors, and will include a monetary award and the Standard Handbook of Electrical Engineering.

This year, the PES-IAS has decided to hold a joint banquet with the American Society of Mechanical Engineers (ASME) which also presents awards to seniors at the same three universities. Combining the two awards banquets has a number of advantages, such as reduced overhead costs for both organizations, plus providing an opportunity to engineers to network.

The awards banquet will be held at the Safety Room at IPL's Morris Street location. Dinner is \$25 per attendee.

## **May Meeting**

In May, the PES-IAS will hold a two part seminar on the applications and uses of circuit switches and dead tank gas circuit breakers. These two equipment items have been the backbone of the electrical transmission system for a number of years. In this lecture, Mr. Pierre Gigon from AREVA will present an overview of each equipment type and its important design features.

The seminar will be held at the Safety Room at IPL's Morris Street location, and will be free to the public. The PES-IAS plans a seminar in September, and another short course in October, and will present details in future Reporters and on the CIS website.

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## CIS-IEEE ACTIVITIES IN 2009

Here is a partial list of the activities sponsored by CIS-IEEE in 2009

Event	Date	Sponsor
<a href="#">Synchronized Phasor Measurements in Electric Power Systems</a>	1/13/2009	PES/IAS
<a href="#">Voice Over IP Short Course</a>	1/29/2009	CIS
<a href="#">Voice Over IP Short Course</a>	2/5/2009	CIS
<a href="#">Smart Relays – Installation and Arc Flash</a>	2/10/2009	PES/IAS
<a href="#">National Engineer's Children's Day</a>	2/14/2009	CIS-IEEE
<a href="#">Applied RFID Workshop</a>	2/21/2009	CIS-IEEE
<a href="#">Spring Short Course: Fundamentals of Electric System Design</a>	2/24/2009	PES/IAS
<a href="#">Leading Indiana through Tough Times through Targeted Economic Development</a>	2/26/2009	PES/IAS
<a href="#">Spring Short Course: Fundamentals of Electric System Design</a>	3/3/2009	PES/IAS
<a href="#">Spring Short Course: Fundamentals of Electric System Design</a>	3/10/2009	PES/IAS
<a href="#">Spring Short Course: Fundamentals of Electric System Design</a>	3/17/2009	PES/IAS
<a href="#">CIS-IEEE and PES-IAS Awards Banquet</a>	4/14/2009	CIS-IEEE, PES/IAS
<a href="#">Benton County Wind Farm Tour</a>	5/12/2009	PES/IAS
<a href="#">2nd Benton County Wind Farm Tour</a>	5/13/2009	PES/IAS
<a href="#">“Commencing to Grow - IUPUI's 20 Year Master Plan”</a>	6/26/2009	PES/IAS
<a href="#">Annual Picnic and Baseball Game</a>	8/9/2009	CIS-IEEE
<a href="#">CIS-IEEE ExCom Meeting</a>	8/20/2009	CIS-IEEE
<a href="#">COMSOC Inaugural Meeting (Tentative)</a>	8/26/2009	CIS-IEEE, COMSOC
<a href="#">CIS-IEEE CIECN Meeting and Bright Automotive</a>	9/10/2009	CIS-IEEE, CIECN
<a href="#">125th Anniversary / Purdue Tours</a>	9/15/2009	PES/IAS /CIS
<a href="#">CIS-IEEE ExCom Meeting</a>	9/24/2009	CIS-IEEE
<a href="#">CIECN October Meeting</a>	10/8/2009	CIS-IEEE CIECN
<a href="#">Benton County Wind Farm Tour</a>	10/20/2009	PES/IAS
<a href="#">CIS-IEEE ExCom Meeting</a>	10/22/2009	CIS-IEEE
<a href="#">Integration of Alternate Energy Applications: The Wind Turbine Initiative</a>	12/10/2009	CIS-IEEE, INCOSE, EMB



### 2010 Meeting Calendar

Date	Host	Subject	Location
Tue, March 2, 9, 16, 23	PES/IAS	Spring Short Course	IPL/Indianapolis
Thu, Mar. 25	CIS	Executive Committee Meeting	IUPUI - ET201S
Tue, April 13	PES/IAS/CIS/ASME	Student Awards Banquet	IPL/Indianapolis
Tue, May 11	PES/IAS	Circuit Switcher Applications	IPL/Indianapolis

... Check the [Section web page](#) for details and current information. .

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#### Central Indiana Section Active Volunteers

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**Editorial Policies**

Each issue of The Reporter typically references three months - the month in which it is published and the following two months. The Reporter is typically published in March, June, September, and December.

Material to be included should be submitted mid-month prior to the month it is to be published. For example, material intended for the September issue should be submitted to the Editor by August 15. The Editor will send a reminder to all IEEE Central Indiana Section entities by the 15th of the month to submit their updates.

Copy should be submitted electronically. Photographs are desirable. Advertisements are welcome. Contact the editor for layout sizes and rates.

Distribution: The Reporter is made available electronically to the approximately 1800 IEEE members within the Central Indiana Section including student members and faculty of Purdue, IUPUI, Rose-Hulman Institute of Technology and ITT Technical Institute.

## Central Indiana Engineering Web Links

ACEC	<a href="http://www.acecindiana.org">American Council of Engineering Companies, Indiana</a>	acecindiana.org
ASCE	<a href="http://www.sections.asce.org/indiana">American Society of Civil Engineers</a>	sections.asce.org/indiana
ASME	<a href="http://www.sections.asme.org/central_indiana/">American Society of Mechanical Engineers</a>	http://sections.asme.org/central_indiana/
ASM-INDY	<a href="http://www.asm-indy.org">American Society for Metals - Indianapolis</a>	asm-indy.org
CIECN	<a href="http://www.indy-engineer.net">Central Indiana Engineering Consultants' Network</a>	Indy-Engineer.net
CINLUG	<a href="http://www.cinlug.org">Central Indiana Linux Users Group</a>	cinlug.org
IBEN	<a href="http://www.indianabionetwork.org">Indiana Biomedical Entrepreneur Network</a>	indianabionetwork.org
ICES	<a href="http://www.in-ces.org">Indiana Council of Engineering Societies</a>	in-ces.org
IHIF	<a href="http://www.ihif.org">Indiana Health Industry Forum</a>	ihif.org
INCOSE	<a href="http://www.incose.org">International Council on Systems Engineering</a>	www.incose.org
INDSPE	<a href="http://www.indspe.org">Indiana Society of Professional Engineers</a>	indspe.org
INDYASHRAE	<a href="http://www.indyashrae.org">American Society of Heating, Refrigeration, and Air Conditioning Engineers</a>	indyashrae.org
NSBE-IAE	<a href="http://www.nsbe-iae.org">National Society of Black Engineers - Indianapolis Alumni Extension</a>	nsbe-iae.org
PIMCIC	<a href="http://www.pmicic.org">Project Management Institute - Central Indiana Chapter</a>	pmicic.org
SAE	<a href="http://www.saesections.org/indiana/">Society of Automotive Engineers, Indianapolis</a>	http://www.saesections.org/indiana/
Sciencetech	<a href="http://www.sciencetechclub.org">Sciencetech Club in Indianapolis</a>	sciencetechclub.org
SIM	<a href="http://www.simnet.org">Indianapolis Chapter of Society for Information Management (SIM)</a>	SimNet.org
SWE-CI	<a href="http://www.swe-ci.com">Society of Women Engineers - Central Indiana Section</a>	swe-ci.com
Techpoint	<a href="http://www.techpoint.org">A diverse collection of technology-based Indiana industries.</a>	Techpoint.org