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THE INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS, INC.

<http://www.ieee.org/fwcs>

Volume 48 - No. 4

April 2005

## Celebrating 25<sup>th</sup> Anniversary Department of Computer Science & Engineering University of South Florida



- Date:** Friday, 22<sup>nd</sup> April 2005  
**Time:** 9am – 9pm  
**Speaker:** See the program below.  
**Location:** Sam and Martha Gibbons Alumni Center, Traditions Hall, USF  
**Cost:** Event without Dinner: **FREE**  
 Event with dinner \$40 per person  
**RSVP:** Make checks payable to: USF Foundation  
 Send checks to: CSE Department,  
 4202 East Fowler Ave, ENB 118  
 Tampa, FL 33620  
**Questions:** Prof. Ken Christensen, (813)-974-4761 or [christen@cse.usf.edu](mailto:christen@cse.usf.edu)

The Department of Computer Science and Engineering (CSE) at USF is celebrating its first 25 years of existence with an impressive record of achievement. As the youngest of the College of Engineering's six departments, CSE was founded in 1980, opening its doors to students in the 1980/81 academic year. Initially housed on the sixth floor of the campus library, the department quickly grew and was relocated to Engineering Building II in 1987. Today the Department of Computer Science and Engineering has 22 faculty members, many of whom are active researchers, seven full-time staff members and approximately 500 undergraduate and 150 graduate students. Over the last few years, the department has graduated 20 PhD students and over 100 MS students. Each year the department graduates approximately 130 BS students.

To celebrate its 25 years of excellence, the Department of Computer Science and Engineering is inviting its alumni and former faculty and staff to a celebration on Friday, April 22, at the Sam and Martha Gibbons Alumni Center on the USF Tampa campus. The schedule of events for the day includes:

- 9:00 – 11:30 Open Labs and Informal Tours
- 1:00 pm Opening welcome from Dr. Paul Givens – Associate Dean and Dr. Rangachar Kasturi – Chair of CSE
- 1:15 p.m. “ADL-driven Exploration of Programmable Embedded System Architectures”  
Dr. Nikil Dutt (IEEE Distinguished Visitor)  
University of California – Irvine
- 2:00 p.m. “Beyond 2001: The Linguistic Spatial Odyssey”  
Dr. James M. Keller (ACM Distinguished Lecturer)  
University of Missouri – Columbia
- 3:15 p.m. Alumni Panel “How my education at USF helped shape my professional career”
- 4:30 p.m. “The First 2500 Years of Computing – A Quick Survey”  
Dr. Michael R. Williams, Head Curator,  
Computer History Museum, CA
- 7:30 p.m. Dinner



### *Substations Committee Annual Meeting*

*Tampa, FL  
10-13 April 2005  
More Details...  
See Pages 3-4*

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## Chair's Comments

**By Angela Alexander**

The 5<sup>th</sup> Annual Celebrate Engineers Banquet held during the Engineers week was a great success!! IEEE along with four other engineering societies joined hands to recognize engineers as well as students who have made outstanding contributions.

The keynote speaker, Mr. Mark Thelen from JPL, gave a captivating talk on two successful MARS probes with stunning pictures and interesting anecdotes. The talk was inspiring and made all engineers feel proud of their profession. Mr. Jules Joslow, the secretary of our Section is the IEEE FWCS Engineer of the year and Mr. Jeremy Huffman is the IEEE FWCS Students of the year. Hearty Congratulations!!

I take this opportunity to thank all of our Section executive committee members who have contributed their time generously to make this important event a grand success!! I also take this opportunity to request you, the IEEE member, to contribute your time generously for IEEE activities. It will be well time spent!! I look forward to meeting you in one our ex-com meetings held first Tuesday of every month at 5:30pm in TECO Hall, Tampa Downtown.

## Prototypes

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# Substations Committee Annual Meeting Tampa, Florida



April 10 - April 13, 2005



This meeting, open to all, provides attendees with the unique opportunity to expand their knowledge and expertise by participating in activities of it's Substation Committee and numerous Working Groups and Task Forces.

**Location:** The 300 room, four-star Wyndham Harbour Island Hotel (phone: 813 229-5000) is on the north shore of Harbour Island, a 177 acre urban development across Garrison Channel from downtown Tampa. Every room has a, spectacular, waterfront view.

The Host Committee has negotiated a special room rate of \$135 US. A few rooms have been held in reserve past the cutoff date of March 18. Contact the Host Committee now to check on availability.

**Contact Information:** Ken Cooley - Host Committee, Chair, Tampa Electric, Email: [klcooley@tecoenergy.com](mailto:klcooley@tecoenergy.com)

## Schedule:

**Sunday, April 10** - Registration (all days), Scheduled Tutorials – Gas Insulated Substations, Drop In Control Houses, IEC 61850 Substation Protocol Standard; Welcome Reception.

**Monday, April 11** - Continental Breakfast, Committee Meetings, Awards Luncheon, Technical Tour, and Companion Activities.

**Tuesday, April 12** - Continental Breakfast, Committee Meetings, Companion Activities, Dinner Cruise Banquet.

**Wednesday, April 13** - Continental Breakfast, Committee Meetings.

*See the Host Committee's Web site for Schedule details*

**Registration:** Register On Line via the Host Committee's Web Site listed below.

Host Committee Web site: <http://www.ieee.org/ascm05>

Or

Substation Committee Web Site: [http://www.ap-concepts.com/ieee\\_substations.htm](http://www.ap-concepts.com/ieee_substations.htm)

## Why come to the 2005 Substations committee meeting in Tampa?

### BENEFITS

One of the Substation Committee's primary objectives is to improve the knowledge and experience of engineers working in the power industry. If your business involves power substation work, there are many benefits to attending the 2005 meeting.

- **Expand your understanding** by participating in one of the three technical tutorials.
- **Effect industry standards** by getting involved in a working group. The "C" subcommittee working groups and task forces have been intimately involved in SCADA RTU and Substation Automation issues and standards for over three decades.
- **Connect with your peers** by networking at the social events.
- **Stay informed** on what direction the industry is taking in the future
- **Represent your company's interests** in the IEEE standards and guidelines.
- **Interface with other professionals** to find new solutions to your company's challenges.
- **It's in your back yard this year!**

## SUBCOMMITTEES

The PES Substation Committee is comprised of six distinct subcommittees, which create working groups to continually update the IEEE standards publications. These subcommittees cover various specific areas of interest. Some of the subcommittees involved include the following:

- Data Acquisition, Processing and Control Systems (“C” groups), also meet annually with the Power Systems Relay Committee (PSRC)
- Transmission and Distribution Substations (“D” groups)
- West Coast Interests (“F” groups)
- Environmental Issues (“G” groups)
- High Voltage Power Electronics (“I” groups)
- Gas Insulated Substation (“K” groups)

For more details please go to the PES Substations Committee Web Site at:

[http://www.ap-concepts.com/ieee\\_substations\\_org.htm](http://www.ap-concepts.com/ieee_substations_org.htm)

### PES/IAS FWCS

# PES Substation Committee Meeting Tutorials

**Date & Time:** April 10, 2005

**Subject:** Substation Committee Annual Meeting

**Speakers:** Committee Members, working groups and task forces...

**Location:** Wyndham, Harbor Island, Tampa, 813 229-5000  
725 S Harbour Island Blvd  
Tampa, FL 33602

**Reservation:** <http://www.ieee.org/cmte/scam2005>  
<http://www.weiquality.com/fwcs-meetings>

**Questions:** Ghaff Khazami, PE (813) 960- 0990, gkhazami@megaway.com

**Cost:** Sunday Tutorials are \$25. See meeting/reservation Web site for Monday to Wednesday meeting registration fees.

If you can't make the meetings on Monday, Tuesday or Wednesday, then try attending one or more of the three tutorials listed below that will be held on Sunday. Details on the Host Committee web site.

#### Tutorials:

April 10 Sunday

9AM -1PM Gas Insulated Substations.

9AM-1PM IEC61850 Substation Communication Protocol.

1:30PM -5:30PM Drop in Control houses

#### Directions:

I-275 to Exit 44 (Ashley Street) Downtown East/Downtown West; Take Downtown West, following signs to Harbour Island. Hotel is one block over the bridge, past the Tampa Convention Center.





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## Students' Corner

### IEEE Student Branch

Congratulations to all graduating seniors! IEEE will be hosting the Spring Senior Awards Banquet on April 29<sup>th</sup>, 2005 at 7:00pm in the Marshall Center Ballroom. Interested in being a sponsor? Sponsors may buy a table for \$150.00 which entitles them to 4 tickets and their logo on the program. If you are interested in being a sponsor please contact us at [ieee@eng.usf.edu](mailto:ieee@eng.usf.edu). For the first time in at least ten years, the student chapter at USF will be entering the robotics competition at Southeastcon 2005. Best of luck to Roderic Paulk, Ruben Dominguez, Tim Rupe, Ibrahim Akyol, Adam Riggs, Tani Abrahams, and Baoduy Tran.

As the new IEEE officers for 2005-2006 take over, I would like to thank all outgoing officers for their dedication to the chapter. The student chapter had an extremely successful year and none of it would have been possible without their help. Thank you to Joshua Schumacher, Ahmed El Geioushi, Carlo Dionson, Jeremy Huffman, Kirsten Hingtgen, and Marjorie Laegel.

**Picnic Report** On Saturday March 5<sup>th</sup>, IEEE members, their families and students at the University of South Florida gathered for the annual Spring Picnic at Riverfront Park on Fletcher Ave. Sponsored by the IEEE Student Chapter at USF, and the local IEEE-FWCS Section, everyone enjoyed the food, fun, and weather (see the pictures below). It was the perfect day for canoeing as many took to the river, while others enjoyed soccer. If you missed out on this event, you definitely do not want to miss our summer picnic! Join us in June as we attempt the first ever IEEE-Ropes Course. Get ready to climb!



*Look whose picnic this is!*



*You missed all the fun we had..*



*Presidents League!*



*Yummy! Barbacue!!*



*Is this a cool T-shirt or what?!*



*Fun, Fun, and more Fun!*

# "Analysis of Change" for the 2005 National Electrical Code (NFPA-70)



- Date:** TBA
- Time:** Registration: 8:30AM – 9:00AM  
Seminar: 9:00AM – 4:00PM
- Speaker:** Bob Moore, Tampa Electric Company  
Other instructors to be announced.
- Location:** TBA
- Cost:** \$125 Members, \$225 Non-Members, \$40 Student Members (includes lunch)  
\$175 For non members who fill out an IEEE application on the training day  
**Optional: Copy of 2005 NEC® Softbound Edition (NFPA 70) for addl. \$65**  
**Orders for 2005 code must be in by Monday, May 2.**
- PDH Credits:** 6 PDH credits will be offered. Be sure to enter you name and PE number as it appears on your license. Florida exempt provider #00015.
- RSVP:** Online at: <http://www.ewh.ieee.org/r3/floridawc/>  
Make checks payable to: IEEE FWCS  
Send checks to: Ralph Painter, IEEE FWCS Treasurer  
648 Timber Pond Drive  
Brandon, FL 33510-2937
- Questions:** Tom Blair at 813-228-1111, ext 34407 or [thblair@tecoenergy.com](mailto:thblair@tecoenergy.com)

**How fast can you adapt to the 2005 National Electric Code?** The new 2005 *National Electrical Code* redefines the state-of-the-art of electrical safety with hundreds of significant changes you need to know about to do your job. This dynamic interactive seminar uses the latest technology and activity-based learning to help you master this latest edition of the Code so you can put requirements into action correctly! Numerous revisions in the 2005 *NEC* address many topics, with major changes including:

- New and revised ground-fault circuit-interrupter (GFCI) rules
- New requirements for arc-fault circuit interrupters (AFCI)
- All-new Article 409 introduces rules for industrial control panels.
- All-new Article 506 presents a zone hazardous area classification system for combustible dusts and ignitable fibers and flyings.
- All-new Article 353 governs installations using HDPE conduit.
- Reorganized electrical calculation requirements in Article 220: Branch Circuit, Feeder and Service Calculations
- New requirements for identification of ungrounded branch circuit and feeder conductors

This will be an excellent opportunity to immediately gauge how the changes in the 2005 National Electrical Code impact your work.

For an additional \$65, a softbound copy of the **2005 National Electrical Code® (NFPA 70)** will be provided. If you would like the additional copy of the NEC-2005 (NFPA 70) for \$65, please note this in the comments field on the online signup page at <http://www.ewh.ieee.org/r3/floridawc/> and **sign up before Monday, May 2** and your copy will be provided to you at the training seminar.

## **Volunteers Needed for the IEEE Electronic Merit Badge Booth at the 2005 National Scout Jamboree**

Merit Badges are used by the Boy Scouts to help scouts increase their skill in an area of personal interest. Of the 100 available merit badges, three – Electricity, Electronics and Computers – fall within the IEEE's scope of interest. The IEEE's [emeritbadges.org](http://emeritbadges.org) program has developed hands-on electricity and electronics instructional material based on the Boy Scout's merit badge requirements. Instructional material for computer education is being developed. Any student, boy or girl can use the program to enhance technical literacy and learn more about viable engineering and other technical career options. The emeritbadges.org program is supported by volunteers from the IEEE and the general public. More than 100 volunteers are needed for the 2005 U.S. National Scout Jamboree, to be held in Caroline County, Va., 25 July to 3 August 2005. For more information on how to volunteer, visit: [www.emeritbadges.org/volunteers.htm](http://www.emeritbadges.org/volunteers.htm)



## IEEE FWCS Science Fair Participation 2005

By Carlomagno B. Dionson



Another year of successful science fair participation by IEEE members has passed. Since last year, our members have judged in 7 of the 12 counties under the FWCS. Some of the counties may not have a well established science fair program or none of the members in that area were available, but the eventual goal is to have a solid IEEE participation in the future wherever science fairs are found.

Much like last year, there were some standout projects that impressed our judges. Understandably, the most notable would go to the "Magnetic Propulsion System for Submarines with One Moving Part" project by Cecil Evers, Jr., a Sarasota 9<sup>th</sup> grader, who almost burned his house while trying to force 100 A from a battery charger through a #18 wire. Never mind his parents' reactions, but his experience will prepare him for the success and failures associated with engineering projects.



Complete awe was another reaction our judges got, when Jonathan Friedman, a 6<sup>th</sup> grader from Baypointe Middle School, displayed his project on a printed circuit board that he designed and tackled all the difficult questions regarding its layout. Hillsborough's William Paul Skelton, a product of the Research Experience for High School Students program, also wowed the judges with his project involving evaporation and diffusion techniques used to alter the electrical and mechanical properties of silicon wafers.

Hopefully, our members' participation in next year's science fairs will continue to increase. It is very important to get involved with the projects of our future engineers and scientists and keep encouraging them to continue in the path of success. Thanks, once again, go out to this year's judges: Pam Hamilton, Jules Joslow, Wing-Ying Kwong, Sheldon Schwartz, Judd Sheets, Art Staldin, Bob Stoffels, and Dr. Chris Yakymyshyn.

Congratulations to **Ralph D. Painter, P.E.** who was awarded the *IEEE Region 3 Dorrell Shirley Florida Council Outstanding Service Award* for 2004. This award recognizes service, with particular emphasis placed on contributions made at the Region level. Mr. Painter currently serves on the IEEE FWCS Executive Committee as Treasurer. Mr. Painter has volunteered countless hours in the service of the engineering community. He was instrumental in the development of the "teacher-in-service" program. The Teacher In-Service Program features IEEE Section engineers developing and presenting technologically oriented subject matter to local pre-college educators in an in-service or professional development setting. The focus on local school districts is a key feature to this program as local engineers and educators can develop long lasting collaborations. The Florida West Coast Section of the IEEE and Mr. Painter piloted this program. To date, the Teacher-in-Service program has made 23 presentations, reaching 419 pre-college educators who represent over 44,000 students. Additionally Mr. Painter has supported the power engineering program at the University of South Florida.

Congratulations to Mr. Painter for his boundless dedication to the engineering profession.

# *Celebrate Engineering Banquet*

*By Tom Blair*

The Florida West Coast Engineering Alliance held its 5th annual "Celebrate Engineering" Awards Banquet on February 18, 2005 at the Wyndham Westshore. The emcees will be Jim Anderson and Paul Wielosznski did a great job keeping the event flowing. The keynote speaker for the event was Mr. Michael Thelen one of many engineers at the [Jet Propulsion Laboratory](#) of NASA who conceived, designed, built and launched the most successful interplanetary space delivery system and probes, ever, the Mars Explorer Robots. Mr. Thelen provided a very informative presentation of the past successes of NASA and JPL and gave us a hint of things to come. Congratulations to the following award winners from IEEE.

*IEEE FWCS Engineer of the Year – Mr. Jules Joslow*  
*IEEE FWCS Student Engineer of the Year – Mr. Jeremy Huffman*



*Lignell Award Winners*



*Mr. Mark Thelen, Keynote Speaker*



*IEEE Student Branch Table*



*Mr. Jeremy Huffman – IEEE FWCS Student of the Year*



*Watching a 3D MARS Movie!*



*IEEE FWCS Excom Table*



## Brain Teaser Challenge Column

By Butch Shadwell

**March BTC** From the far off planet Zedonia our hero, Brodlik needed "... an opto-isolator that coupled a signal that varied between 12 and 240 volts to a logic input. There is a current limiting resistor on the input side of 240 Kohms and the LED has a 1 volt Vf. In order for the output of the isolator to deliver the correct logic state, the open collector NPN transistor must saturate at at least 50 uA collector current. What is the minimum current transfer ratio (CTR) for the opto-isolator that Brodlik needs to repair this system?"

I have received a number of correct answers to this BTC already. Basically, the current transfer ratio of an opto-isolator is the output current divided by the input current times 100, because this spec is usually in percent of input current. A few of the answerers forgot to multiply by 100. So the lowest amount of input current will be at 12 volts. Subtracting the Vf of the LED, we get  $11\text{v} / 240\text{Kohms} = \text{min input current}$ . This gives us an input current of 45.8uA.  $(50/45.8)*100 = 109.1\%$  for the desired CTR. But I bet you already knew that.

**April BTC** Have you ever wondered about lint? Of course lint is the accumulation of loose fibers from clothing and other woven materials. These fibers may accumulate anywhere. I've often wondered where does all this lint go to? It couldn't simply vanish into nothing. Then I thought, these fibers should not go to waste. Certainly there is value in seeing them reused. There would be savings in energy and sheep feed in collect all of this stray lint and turning into new clothing. I can imagine the marketing and special labels identifying the clothing as being made from recycled lint. No doubt, Hollywood personalities would make it a cause celeb.

So then the problem was how to collect this valuable lint. How does one recover a substance that may be sloughed off at anytime and anywhere. And then it struck me ... we could treat all clothing fibers with a ferro-magnetic compound so that as it is released, the wearer might have a powerful magnet hanging around the neck that could collect the lint before it could hit the ground. Brilliant!

In initial experiments we measured the field strength from the end of the dangling bar magnet, down 1 foot to be 1000 gauss. If there are no other ferrous influences on the field, what field strength would you expect at 2 feet?

*Reply to Butch Shadwell at [b.shadwell@ieee.org](mailto:b.shadwell@ieee.org) (email), 904-223-4510 (fax), 904-223-4465 (v), 3308 Queen Palm Dr., Jacksonville, FL 32250-2328. (<http://www.shadtechserv.com>) The names of correct respondents may be mentioned in the solution.*

### JANUARY MEMBERSHIP HIGHLIGHTS

IEEE membership totaled 374,946 in January -- an increase of 1.8 percent from January 2004. Higher-grade memberships grew 0.1 percent to 299,586, while student memberships increased 9.3 percent to 75,360. For details, read the Membership Development Report at <http://www.ieee.org/organizations/rab/md/mdprogrpt.html>.

### IEEE PERSONAL EMAIL ALIAS BLOCKED NINE MILLION VIRUSES IN 2004

Do you have an IEEE email Alias? - If Not, Why Not - It's FREE! It Can Provide Another Layer of Protection!

Users of the IEEE Personal Email Alias were protected from more than nine and a half million viruses in 2004. The service, a free benefit of IEEE membership, also includes an optional tool to block unsolicited commercial email, otherwise known as spam. For more information, visit <http://www.ieee.org/alias>.

### HARDWARE/SOFTWARE DISCOUNTS AVAILABLE TO IEEE MEMBERS

IEEE members in the United States, United Kingdom and Canada are eligible for discounts on hardware and software purchases through Insight Inc. as part of the IEEE Financial Advantage Program. Discounts apply to more than 250,000 products from IBM, Apple, Microsoft, Hewlett Packard, Toshiba and other well-known brands. To start browsing, visit <http://www.insight.com/ieee>, click on your country's flag and set up an account.

## April 2005 Calendar of Events

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1	2
3	4	5 <i>5:30PM: IEEE FWCS EXCOM Meeting, TECO Hall, Tampa Downtown</i>	6	7	8	9
10 <i>9-5: PES Substations Cmte Annual Mtg, Harbour Isld, Tampa</i>	11 <i>9-5: PES Substations Cmte Annual Mtg, Harbour Isld, Tampa</i>	12 <i>9-5: PES Substations Cmte Annual Mtg, Harbour Isld, Tampa</i>	13 <i>9-5: PES Substations Cmte Annual Mtg, Harbour Isld, Tampa</i>	14	15	16
17	18	19	20	21	22 <i>9am-9pm: 25<sup>th</sup> Year Celebration CSE Department, USF, Tampa Campus</i>	23
24	25	26	27	28	29	30

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