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# THE SUNCOAST SIGNAL

THE INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS, INC.

Volume 51 — No. 11

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

November 2008



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## *This Month's Meetings*

### *November 4th: EXCOM Meeting At TECO Plaza*

*702 N. Franklin Street, Tampa*

*Meeting starts at 5:30PM and ends at 7:30.*

*Register online at <http://time2meet.com/fwcs-excom/index.html>*

*Meeting is open to all FWCS members and guests*

### *Joint Planning Dinner Meeting - AESS, Computer Society, and Life Members*

*Monday, November 10, 2008 at 6:00 pm*

*CDB's Southside Italian Restaurant*

*3671 S. West Shore Blvd*

*Tampa, FL 33629*

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### *Programmable Logic Users Group Mini PL-UG Fest 2008*

*Date/Time: Tuesday, November 11, 2008, 9:00 AM to 3:00 PM*

*Holiday Inn Select*

*3535 Ulmerton Road*

*Clearwater, FL 33762*

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### *GOLD and/WIE Networking and Social*

*Location: Chili's*

*N Dale Mabry and Columbus Ave*

*Wednesday, November 12, 2008*

*6pm to 7pm*

## *This Month... (Editor's Column)*

As I look at my e-mail in-box for this month I noticed a lot of people sending me things to include in the November Signal. I am not sure what the reasons are, but I am glad to see it happening. The Signal is all about what the members of FWCS are doing with the various events and what they want to contribute in the form of articles. In addition to the event announcements I would like to encourage the people hosting the event to send in a follow up article about the event. I think this will be a great way to let people know how the meeting went, how many attended and will serve to generate interest in the next meeting. It wouldn't even have to be a long article, just a short paragraph and maybe some photos to accompany the article.

November is looking like a busy month for meetings as you can see on the calendar. I would also like to thank our contributors this month. Jim Anderson (who is becoming a regular!), Jeff Basiaga Tom Blair, Butch Shadwell, the students at USF, Sean Denny and a new contributor, Lealand LaPoint II. **RAS**

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THE SUNCOAST SIGNAL is published monthly by the Florida West Coast Section (FWCS) of the Institute of Electrical and Electronics Engineers, Inc. (IEEE). THE SUNCOAST SIGNAL is sent each month to members of the IEEE on Florida's West Coast. Annual subscription is included in the IEEE membership dues.

The opinions expressed, as well as the technical accuracy of authors, advertisers or speakers published in this newsletter are those of the individual authors, advertisers, and speakers. Therefore, no endorsement by the IEEE, its officers, or its members is made or implied.

All material for THE SUNCOAST SIGNAL is due in electronic form by 1<sup>st</sup> Friday after the 1<sup>st</sup> Tuesday of the month preceding the issue month.

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## *PES/IAS Seminar a Success!*

On October 17, the Florida West Coast PES/IAS Chapter held a seminar on Electric Machines and drives at Tampa Armature Works. After the 4 hour seminar, a tour was given by Jim Stoutamire (TAW) of the motor repair and rewind facility. IEEE FWCS Provided 4 PDH credits for attendance at the seminar. The seminar was a great success and was filled to capacity. The IEEE FWCS greatly appreciates the volunteer work of Mike Bigger, Steve Lamb, and Jim Stoutamire with Tampa Armature Works (TAW) for their efforts in setting up this seminar. Many thanks to all that continue to support this effort.

**Tom Blair**

## IEEE.tv

**Analog to Digital Traits (Member Access)** - Accuracy, efficiency and speed are the three fundamental traits of analog to digital converters. Using electronic cameras and temperature sensor, these basics are explained. The experts are Charles Sodini of MIT and Terri Fiez of Oregon State University, frequent presenters at the VLSI Symposium on Circuits.

**Art of the Start: Entrepreneurship (Member Access)** - Watch Guy Kawasaki, former Apple Fellow and Managing Director of Garage.Com, share his unique thoughts about what it is to be an entrepreneur and how to raise money. Hear from experienced entrepreneurs, venture capitalists and angels about how to raise money during the startup period and beyond.

**Carl Selinger: Stuff You Don't Learn in Engineering School (Member Access)** - In this interview, Carl Selinger discusses his book "Stuff you Don't Learn in Engineering School." This practical book offers young engineers advice on speaking in front of a group, running a meeting effectively, making decisions, setting priorities, working with all sorts of people, learning to negotiate, developing leadership skills, and dealing with stress in the workplace.

**Doing the Right Thing: Social Implications of Technology (Member Access)** - This video intends to encourage working engineers and students to engage in discourse concerning the social, economic, and environmental impact of technology



## Nominating Committee Report

**(Richard Beatie, Jim Beall, Jim Howard – Past Chairs)**

The year end is approaching and it is time to elect (or re-elect as the case may be) new officers for the Section. The Officers slated for this election will be the Section Chair, Vice-Chair, Treasurer, and Secretary. The following individuals have been brought forward by the Committee and approved for nomination by the Section Executive Committee:

- Jim Anderson – Chair
- Serge Beauzile – Vice-Chair
- David Figueroa - Secretary
- Paul Schnitzler - Treasurer

The elections will be held at a Section meeting before the end of the year. **Jim Howard**





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## Colorbook Series Results

On September 19, the Florida West Coast PES/IAS Chapter held its second IEEE color book series seminar on IEEE 142 - IEEE Recommended practice for Grounding of Industrial and Commercial Power Systems. Elliot Rappaport, P.E. gave a presentation based on his experience working as the Standard 142 (Green Book) Chairman, and his professional experience. IEEE FWCS Provided 6 PDH credits for attendance. The seminar was a great success and was filled to capacity. The IEEE FWCS greatly appreciates the volunteer work of Jeffery Basiaga (Stantec Engineering), Dr. Ralph Fehr (University of South Florida), Tom Blair (Tampa Electric), Ralph Painter (Tampa Electric), John Stankowich (IEEE FWCS PES/IAS), and Jaime Arenas (Tampa Electric) for their time and dedication in making arrangements. The seminar was held at USF and the working staff was comprised of volunteers from the Power & Energy Society.

Your local IEEE PES/IAS chapter will continue its efforts to present to the local community seminars on IEEE standards as opportunities present themselves in the future. Many thanks to all that continue to support this effort. **Jeff Basiaga**



# *Joint Planning Dinner Meeting - AESS, Computer Society, and Life Members*

**Monday, November 10, 2008 at 6:00 pm**

Social time starts at 6:00 pm. This is an open meeting. You are welcome to attend this planning meeting and share your suggestions for chapter events and meetings in 2009.

Also take advantage of this chance to meet and network with fellow engineers have an excellent dinner at CDB's Southside Italian Restaurant in South Tampa. You may order salad, soup, entree, sides, and desert from the regular menu for only:

\$10 for IEEE members.

\$20 for guests of members.

This is a great opportunity to network, have a good time and share your ideas. The Meeting will be held at:

## **CDB's Southside Italian Restaurant**

3671 S. West Shore Blvd.

Tampa, FL 33629

Phone: 813-805-2327

Contact Jim Lumia to join IEEE or add AESS to your IEEE membership and get your dinner free. [JLumia@ieee.org](mailto:JLumia@ieee.org) (813)832-3501.

<http://ewh.ieee.org/r3/floridawc/membership.html>

If you have problems registering on this web site, please email your registration information to [JLumia@ieee.org](mailto:JLumia@ieee.org).

**Please RSVP online at: <http://time2meet.com/fwcs-meetings/>**



## *Programmable Logic Users Group Mini PL-UG Fest 2008*

AESS, Computer Society, and PL-UG Programmable Logic Users Group present

### **Mini PL-UG Fest 2008.**

Date/Time: Tuesday, November 11, 2008, 9:00 AM to 3:00 PM

Holiday Inn Select

3535 Ulmerton Road

Clearwater, FL 33762

This event sponsored is by the Florida West Coast Aerospace & Electronic Systems Society (AESS) and the Programmable Logic Users Group (PL-UG).

**This Mini PL-UG Fest will feature Xilinx programmable logic technology and embedded systems design with an emphasis on FPGA technology.**

Other vendors will have equal opportunity to participate in Mini PL-UG Fests in 2009. This is an open meeting and there is no charge for attendees. Non-members and students are welcome.

On Tuesday, November 11th, PL-UG Fest offers free admission and lunch (courtesy of Xilinx). Please register three days prior to the event to reserve your lunch. Presentations begin at 9:00AM and sessions end at 3:00PM. The event will feature application-oriented presentations and demonstrations from Xilinx. **Topics** include industry outlook and future FPGA products, as well as other embedded processing guidance from Xilinx application engineers.

**Please RSVP online at: <http://time2meet.com/fwcs-meetings/>**

If you have problems registering on this web site, please email your registration information to [JLumia@ieee.org](mailto:JLumia@ieee.org).

Companies wishing to participate in other 2009 Mini PL-UG Fests can call Jim Lumia at 813-832-3501 or

[JLumia@ieee.org](mailto:JLumia@ieee.org)



## *Shaking Things Up in the Workplace*

If, like me, you actually enjoy reading the 100+ engineering management books that get published every year then you are probably well aware of what I like to call "the silver bullet syndrome". In any given engineering management book, the author generally describes a problem, documents the approaches that had been tried to solve the problem, and then finally gets around to describing the solution that finally saved the day. You can pick your favorite engineering management strategy: TQM, Black Belt, Just In Time, etc. and there are multiple books that basically tell the same story.



That's why when I was leafing through the Theory & Practice section of the Wall Street Journal, my attention was caught by an article by Phred Dvorak titled "Experts Have a Message for Managers: Shake It Up". The gist of the article was that management practices that solve a particular problem at a given point in time can eventually turn on a company. This has some significant impacts on engineering teams.

The article goes on to say that if you keep doing the same things over and over, even if they made you a great engineering department at one point in time, then they will eventually lead to problems. The reasons for this dire eventuality is because you can develop tunnel vision, start to resist new ideas, stop experimenting, start to build silos, and stop being able to adapt to new changes. Dang -- I thought that if I could only find & read the right book, then all of my problems would be solved.

It turns out that the experts recommend that in order for an engineering department to succeed in the long term, you need to set up processes & procedures that naturally cause tension and collaboration at the same time. Having both of these conditions present at the same time will help keep the department open and able to change. You have to be careful to manage both of these -- too much of either will result in a workplace that nobody wants to be a part of.

Ok you say, so how can this be done in my engineering department? You have many choices: reorganizing the department is a quick and dirty way to shake things up quickly. How about telling everyone that their job descriptions are only temporary. There is the engineering classic: give different managers different goals (reduce costs, produce twice as many products). Separating tasks and making managers dependent on each other in order to complete projects will also introduce new challenges.

At the end of the day I guess we are all just a little bit like zoo animals. We can get very used to what works when it is working well. We say that friction is bad, but it turns out that we all need just a little bit of conflict in our lives in order to keep us engaged in what we are doing.

**Jim Anderson**



### *IEEE-USF Student Branch Activities*

The Fall 2008 school year has just begun and IEEE-USF Student Branch is off to a great start. On September 11, at the first General Meeting presentations were made by Dr. Don L. Morel, Dr. Richard Gitlin, Dr. Rudy Schlaf, and Dr. Jing Wang. Free food, drinks and raffle tickets were also given out at the first General Meeting.



IEEE-USF teamed up Europeans @ USF and Eta Kappa Nu to have a picnic at USF Riverfront Park on Saturday, September 20. About 50 students and faculty showed up for the free food (Greek souvlaki skewers), volleyball, canoeing and other games. Raffle tickets, which were handed out at the first GM, were drawn at the picnic and six \$25 gift cards were given away.

Ultimately both events were a huge success.

IEEE-USF needs a grill for fundraisers on campus. We are actively seeking donors who may have a heart to help out.



## ***Brain Teaser Challenge Solution - August 2008 Butch Shadwell***

Last month's BTC was a bit easier than I like, but I was having a worse time than usual coming up with an appropriate problem. I decided to ask about LED biasing as follows: "... a circuit once that used the voltage across a diode junction to get the log of an input sine wave function. That signal was amplified 2X and then that voltage was applied to the base of a bipolar transistor, where the collector current is proportional to antilog of the change in voltage applied to the base. What does the voltage across the collector resistor look like? ... Assume that all four quadrants are covered."

I gave a lot of information in this problem in an attempt to keep it as simple as possible. In fact I try to keep these things simple enough to do in your head without any reference material at all. In this problem I describe a circuit configuration that takes the log of an input signal, then doubles it and takes the anti-log. This is the mathematical equivalent of squaring the input signal. If the input signal is a sine wave ( $A\sin(\omega t)$ ) then the output should be

$(A\sin(\omega t))^2$ . The answer to squaring a sine wave is  $A^2/2(1-\cos(2\omega t))$ . If A equals 1 then  $\sin^2(\omega t) = 1/2(1 - \cos(2\omega t))$ , an identity I am sure you have all learned at some point in the distant past. The answer to the question is that the output is a sine wave at twice the frequency of the input sine wave, in phase, two for one. But I bet you already knew that.

## ***Brain Teaser Challenge – September 2008***

Certain times of year you can see many small meteors falling to earth, streaking to the surface from somewhere out in space. There is a theory that in fact life on this planet may have been seeded through DNA from space. The first microbes would have been based on these biological codes and then more complicated organisms evolved as different genes were expressed.

The thing about DNA is that most of it is not used in the life span of most organisms. Different genes only express themselves in the physiology of the organism when they are activated by chemicals in the vicinity. Your genome may include genes for a hairy body and arms that reach your knees, but these do not express themselves in most of us (rotten luck Fred).

Electrophoresis is a technology developed many years ago to sort protein molecules based on their mass. It involves straightening and coating each molecule with a negatively charged chemical, then placing the samples into a gel. Then an electric field is applied. The smaller molecules are more mobile in the viscous gel and so migrate more quickly toward the positive electrode. The result is that you get bands made up of molecules of the same mass at various distances from the starting point.

Your chemistry question today is: what does it mean if some of these molecules are isomers?



***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 column.***



## ***GOLD and WIE Networking and Social!***

Come join us for appetizers at  
Chili's

Held for Graduates of the Last Decade and Women in Engineering  
N Dale Mabry and Columbus Ave  
Wednesday, November 12, 2008  
6pm to 7pm

For more information contact Timothy M Doolittle [tdoolittle@tmdvault.fastmail.fm](mailto:tdoolittle@tmdvault.fastmail.fm)



## *Be a star at the Great American Teach-In! November 19th*

Each year, local school systems invite professionals and parents into the classroom to step into the shoes of teachers and share their experiences with students. Visitors engage students in a variety of activities. Visitors often use the opportunity to share the joys and challenges of their professions. Professionals with unusual experiences or special expertise may prepare and teach classes about topics of current interest. For example, one Power and Energy Society member who was involved in the TECO/Department of Energy project to build the first commercial scale coal gasification plant in Polk county taught a class on clean coal technology to environmental science students at Bloomingdale high in Hillsborough County.

If you want to show rather than tell students what engineering is all about, try downloading one of the hands-on activities from the IEEE web site. Go to [www.ieee.org](http://www.ieee.org), click on "Education, click on "Pre-University," click on "lesson plans." The "Build Your Own Robot Arm" activity and the "Build a Better Candy Bag" activities work across a broad range of age groups, and are fun and easy to do. Feel free to change, modify and adapt the activities for your Teach-In visit.



### *Power Infrastructure*

At the present time it seems as if the US infrastructure is collapsing. With conventional fuel prices at all time highs and the lack of fully developed, and implemented, alternative energy sources, now is the perfect time for engineers to introduce and endorse new and innovative means of producing energy. We've utilized carbon based fuels, such as oil, as our primary source of energy for so long that it's potential is beginning to diminish and the amount of energy within these fuels no longer outweigh the disadvantages of their economical and environmental impact. Also, relying on one source to deliver the majority of the countries power has become inefficient and costly.

The alternative solution would be to utilize a region's specific geographical advantages to better implement a power infrastructure. There are many alternative energy solutions available, such as wind, solar, hydroelectric, geothermal, nuclear, tidal-harnessing, etc. Not every option is necessarily efficient or even capable of being utilized in every region; however, a region may contain great potential for an individual alternative source. For example, the Midwest possesses the potential to generate gigawatts of energy from utilizing wind turbines, whereas regions along the coast, such as Florida, have the potential to create energy from harnessing the power from the ocean currents through the use of tidal turbines. Solar energy can be implemented in almost any region to supplement the current power grid. Nuclear energy can be used to create a strong foundation for a sustainable power infrastructure. With nuclear energy, large amounts of power can be generated with minute amounts of fuel and with modern technology and engineering practices; nuclear energy is much safer than what many may believe.

One usually overlooked source of potential energy lies within the inefficiency of current power systems. By increasing the efficiency of the machinery, and transmission networks, used in power development, we can salvage wasted energy which creates more energy to be distributed into the power grid. The days of relying on conventional energy sources to power our country are slowly coming to an end and we must utilize our technology and the geographical advantages of specific regions to create a more efficient, self-sustaining infrastructure. And it is the responsibility of the engineers to not only create the technology, but also to push forward the development and implementation within the infrastructure.

*Lealand LaPoint II, Undergraduate Electrical Engineering Student, USF  
IEEE Student Member, FWCS*



### *What Has IEEE-USA Done for You Lately?*

Keep track of what IEEE-USA has been doing throughout the year. IEEE-USA's major events and activities are recorded continuously in the organization's online year-in-review. IEEE members are encouraged to review and offer feedback on all that IEEE-USA is doing on behalf of U.S. IEEE members. See: <http://bmsmail3.ieee.org:80/u/12960/90736>

November 2008 Calendar of Events (For more information see P. 1) *inside this Signal...*

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
26	27	28	29	30	31	1
2	3	4 <i>EXCOM Meeting at TECO Hall</i>	5	6	7	8
9	10 <i>AESS Planning Meeting, p4</i>	11 <i>Mini PL-UG Fest, p4</i>	12 <i>GOLD/WIE Social, p 6</i>	13	14	15
16	17	18	19 <i>The Great American Teach-In, p7</i>	20	21	22
23 30	24	25	26	27 <i>Thanks-giving</i> 	28	29

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