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THE

SUNCOAST

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This Month's Meetings

October 6th: EXCOM Meeting

Meeting starts at 5:30PM At TECO Plaza

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

Meeting is open to all FWCS members and guests

2009 Conference on Science and Innovation

Atlanta, Georgia. October 2-3, 2009.

to register go to <http://atlantaconference.org/>

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Implementing Volt/VAr for Smart Grid

Friday, October 23, 2009

Seminole Electric (16313 N. Dale Mabry Highway)

To register go to: <http://time2meet.com/fwcs-pes1/index.html>

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This Month...(Editor's Column)


I recently had the opportunity to enjoy some of the benefits of the work that automotive engineers do. I was in my SUV traveling north on I275, heading for home after work. I noticed the car ahead of me had stopped and I was able to get my car stopped just in time. The truck behind me didn't stop! He rammed into me and I in turn into the car ahead of me and so on for a total of four vehicles. By a miracle, no one was seriously injured and this is where the engineering comes in. Due to improvements in seat attachments to the floor and strengthening seat back, I was able to get out unharmed. Of course, air bag systems which can decide in 20 milliseconds whether to deploy or not and seat belt/shoulder harnesses which are standard on most, if not all vehicles played a part also. My car was a total loss due to frame damage. The car ahead of me caught fire and burned up completely and there was minor damage to the other vehicles. Had I been in my 1989 vehicle the Signal might have been a little late...



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WASHINGTON (17 September 2009) -- IEEE-USA is launching the organization's third online engineering video competition for undergraduate students on "How Engineers Make a World of Difference." IEEE-USA will present four scholarship awards totaling \$5,000 to undergraduates who create the most effective 90-second video clips reinforcing for an 11-to-13-year-old audience how engineers improve the world. Entries must be submitted through YouTube by midnight Eastern Time on Friday, 15 January 2010. Winning entries will be announced and shown during Engineers Week, 14-20 February 2010.

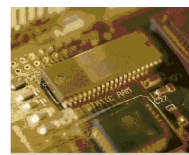
Entries in the 2009-10 competition should provide an individual profile of an engineer and how he or she makes "a world of difference." Entries will be judged on their effectiveness in reaching the target audience by portraying engineers as "real people" who seek to make life better, as well as on their originality, creativity and entertainment value.

First prize is: \$2,000; second prize, \$1,500; and third prize, \$1,000. The first-place winner will also receive up to \$1,000 to cover travel expenses to receive his/her award at the IEEE-USA Annual Meeting in Nashville, Tenn., on 6 March 2010.

Further, a special award for \$500 will be presented for the most innovative and effective showing of a video entry to a "tweener" target audience. This could involve presenting the video entered in the competition at a university engineering expo for K-12 students, in a middle school classroom, with a scout group, or in another setting with 11-to-13-year-olds.

For the first time, the video competition is open to all U.S. undergraduate students regardless of academic discipline. However, at least one undergraduate participant must be an IEEE student member. For the third consecutive year, the competition will be judged by two engineering graduate Ph.D. students, Andrew Quecan and Suzette Aguilar; and by Nate Ball, engineer-host for PBS' "Design Squad."

For more information on how to enter the IEEE-USA Online Engineering Video Scholarship Competition and to upload an entry on YouTube, visit http://www.ieeeusa.org/communications/video_competition. Information on how to become an IEEE student member is available at <http://www.ieee.org/web/membership/join/join.html>.



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Nominations Open for PE/IA Chapter Officers for the 2010 Term

The FWCS PE/IA Chapter Nominations Committee is accepting nominations for the offices of Chairman and Vice-Chairman for the 2010 term. Potential candidates should contact one of the Nomination Committee Members below for more details on the positions and requirements. The slate of candidates for the 2010 term will be advertised in the Signal in November and we will plan to hold the elections at the December Chapter Meeting.

Nominations Committee

Quang Tang – q.tang@ieee.org - 813-739-1222

Jim Beall – j.beall@ieee.org - 727- 376-2790

Jim Howard – j.howard@ieee.org – 863-834-6585



The Bullet Train Milestone is a Commemorative Coaster

The technological innovation Tokaido Shinkansen (Bullet Train), an IEEE Milestone sponsored by the IEEE Tokyo Section of Region 10 and an American Society of Mechanical Engineers (ASME) Landmark, is being commemorated as a limited edition coaster.

The Bullet Train, which began service in 1964, is considered the world's first high speed train. The Bullet Train set a world record operating at speeds up to 210km/hr when it first began service in 1964. This historic engineering achievement, designed with the world's most advanced electrical and technological train technologies, pioneered high speed railway transportation around the world. What started as a 500km route between Tokyo and Osaka has since expanded to a 2,459km network linking most major cities on Honshû and Kyushû.



To celebrate this important milestone, individuals who donate US\$100+ to the IEEE Life Members Fund (LMF) from October 2009 to September 2010 will receive the limited edition pewter coaster depicting Tokaido Shinkansen. The Bullet Train coaster is the third in a series of six limited edition pewter coasters commemorating various historic IEEE Engineering Milestones. One coaster will be given per donor, per year.

The LMF provides grants to new and ongoing projects that are beneficial to potential engineers and engineering students. Your gift will both preserve the memory of the Tokaido Shinkansen engineering achievement, and support future technological innovations. To receive your limited edition Bullet Train IEEE Milestone coaster, make a donation of US\$100 or more to the IEEE Foundation/LMF today at www.ieee.org/donate.

IEEE Life Members Fund supports educational and professional projects that are of interest to IEEE Life Members, that reflect the breadth and range of the

engineering field, and that make a significant, positive, global impact on the profession. To learn more visit <http://www.ieee.org/lmc>.



Nominations Open for Section Officers for the 2010 Term

The FWCS Nominations Committee is accepting nominations for the offices of Chairman, Vice-Chairman, Secretary and Treasurer for the 2010 term. Potential candidates should contact one of the Nomination Committee Members below for more details on the positions and requirements. The slate of candidates for the 2010 term will be advertised in the Signal in November and we will plan to hold the elections at the December Section Meeting.

Nominations Committee

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Jim Beall – j.beall@ieee.org – 727- 376-2790

Jim Howard – j.howard@ieee.org – 863-834-6585



Special Thanks to TAW Custom Equipment

Did you miss the outstanding presentation and tour by TAW? If so, you missed a great opportunity to learn about the capabilities of TAW Custom Equipment. Thanks to Mark Repp, the TAW Customer Equipment Plant Manger and Jeff Shallbetter, their Industrial Switchgear Specialist the attendees got a first hand, insightful tour and presentation. Mark and Jeff shared with the group the work TAW is doing with the military and with major manufacturer. The tour of their facilities gave us the first hand view of the type of detail work they are capable of.

Special thanks go to Mark, Jeff, and other TAW employees that made this another outstanding meeting for the FWCS PE/IA Chapter.



Brain Teaser Challenge Solution - June 2009

Butch Shadwell

It seems I am being transformed into a power guy. I hope someone discovers a cure before it is too late. “Your challenge this month, should you choose to accept it, is to explain why most of the harmonic energy you find on the power mains is in the odd harmonics of the fundamental?” Derek Paice sent me a very nice answer to this BTC, so I am going to give you his response – “Rotating machines are generally symmetrical in the sense that negative half cycles have a similar shape wave to that of the positive half cycles. Mathematically $f(\omega t + \pi) = -f(\omega t)$. In a Fourier analysis of a total waveform like this, expressions for individual harmonics of number n include a multiplier of $\sin(n \times \pi/2)$. If n is an even number this expression becomes zero, hence there are few even harmonics from generators. Individual loads can draw even harmonics, but IEEE Std. 519 guideline discourages use of loads causing even harmonics of current, by limiting their tolerable amount to 25% of the allowable odd harmonics.” But I bet you already knew that.

Brain Teaser Challenge – August 2009

Sorry I missed a month with the BTC. My biggest vice is that I volunteer too much, and my volunteer work has been dominating my time. I guess this column is one of my volunteer jobs, now that I think about it.



Anyway, some folks have asked me to mention that one of my big volunteer jobs is as the new international chair of the Humanitarian Technology Challenge, Reliable Electricity Committee. This project is sponsored by the United Nations Foundation and the IEEE. We are a large group of volunteer professionals and academicians who are dedicated to finding better ways to help people in need by the application of technology. These could be disaster victims or people who have never had infrastructure of any kind. Lighting, better food and water, communications, and better medical care are among our objectives.

I was recently asked about consulting on a project to collect deuterium from the ocean. We all know that deuterium is found in much higher concentrations in the sea than in the atmosphere. Perhaps the heavier molecules find it harder to make the transition from liquid to gas phase on the surface, so most of the evaporation is of the lighter isotopes. So the problem today is - how big a container do I need to hold 1 mole of H_2 at STP? Don't light a match.

Reply to Butch Shadwell at b.shadwell@ieee.org (email), 904-410-9751 (fax), 904-410-9750 (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.



IEEE Consultants Network

Our last meeting was held on Tuesday, August 25 at the CDB's Southside Italian Restaurant in Tampa. Our guest speaker was Patrick M O'Connor, an attorney of O'Connor & Associates, a business law firm. He gave us very comprehensive presentation of the legalities of starting and operating a consulting business. The attending members were very interested in finding out answers to pertinent questions associated with their businesses and Patrick certainly had answers for everyone's questions. His chat centered on Estate planning, Corporate Entity Issues (Choice of entity, shareholders, control), Shareholder agreements, how to structure your business, life insurance, etc. and last but not least, the intricacies of an S-Corporation.

Our next meeting will be held on Tuesday evening, September 29 at the same location (they have excellent Italian food and a \$9.99 dinner menu), CDB's Southside Italian Restaurant, 3671 S. West Shore Blvd., Tampa, FL 33629

This month our guest speaker will be Mr. John Walters of Lewalt Consulting Group <http://www.lewaltconsulting.com> a financial and Tax professional who will address the financial aspects of starting and operating a consulting business. This is an excellent opportunity to ask your questions about taxes for your Consulting Business and let John provide you with an answer. So please make it a point to attend so that you may be rewarded with his knowledge and a fine dinner.

Those of you who have been to a meeting and we have your email address, will receive an email with a link to the reservation system we use. Any one that has not attended one of our meetings, please contact Hermann Amaya, hamaya@tampabay.rr.com, (727) 543-1308 or George H. Schott george@Imbedded.com (727) 735-0853





Implementing Volt/VAr for Smart Grid

Date: Friday, October 23, 2009
Time: Seminar: Registration 08:30am-9:00am, Speaker 9:00am-3:00pm
Speaker: Tom Beckwith, Dr Murty V.V S Yalla, Tom Jauch, and Chuck Mozina.
Beckwith Electric Co., Inc. 6190-118th Avenue North Largo, Florida 33773
Location: Seminole Electric (16313 N. Dale Mabry Highway)
PDH Credits 5 Professional Development Hours will be awarded.
Cost: \$100 Members, \$150 Non-Members. (Includes breakfast & Lunch)
RSVP: Online at: <http://time2meet.com/fwcs-pes1/index.html>
Make checks payable to: IEEE FWCS
Space limited to the first 50 registrants!
Questions: Serge Beazile at 727-344-4123 or Serge.Beazile@ieee.org

Present the theoretical and practical principal aspects related to Integrating Volt/VAr Management strategies consistent with Smart Grid objectives for Asset Management and Reliability in the distribution system. Discuss implementation of LTC transformer control, line regulator control along feeders, pole top capacitor bank control (remote and local), power quality issues; sags swells CBEMA and harmonics, as well as protection of the intertie with disburser, alternative, or green energy sources. Investigate system performance enhancements such as use of; autoadaptive techniques, VAr Biasing, Line Drop Compensation (LDC), flattening the voltage profile end to end and Conservation Voltage Control, paralleling for single bus, double bus and ring bus configurations, SCADA heartbeat integrity checks, and automatic change over on loss of communications. Additional topics include communications; ports, protocols and media and the use of Ethernet over fiber optics, IEC 61850, mesh networks, reporting by exception and unsolicited reporting, broadcast capabilities for voltage collapse mitigation, distribution VAr support to transmission for voltage collapse mitigation, and much more.



2009 Conference on Science and Innovation



Science and innovation are aimed at change—new knowledge, new techniques, and fresh approaches to addressing the major challenges facing humanity. The 2009 Atlanta Conference on Science and Innovation policy will focus on ways that science and innovation policies can shape the future by setting goals such as safety, economic security, improved health, and environmental quality and by designing programs to reach these goals.

Themes of the conference will include, but are not limited to, the following:

- The effects of globalization on science and innovation
- Achieving common national and global goals through science and innovation
- Changing dynamics among science and innovation organizations, including private firms, universities, and public laboratories
- Improving the science and innovation workforce
- Regional and international policy actors, agencies, and funding programs
- Methods and data—measuring science and innovation dynamics

Conference dates are October 2-3, 2009

Information is available at <http://atlantaconference.org/>

Register for the conference at <http://www.atlantaconference.org/registration/index.php>

Teacher in Service Event

Dear Friends,

Hope you all had a nice summer! As I write this the children are getting back to school. On August 10th, I helped Bob Caetano, friend of IEEE member Gibeon Bradbury, repair computers at Dorothy Thomas School in Tampa. We reinstalled Windows 98 or Windows 2000 on six desktop PCs in five hours.

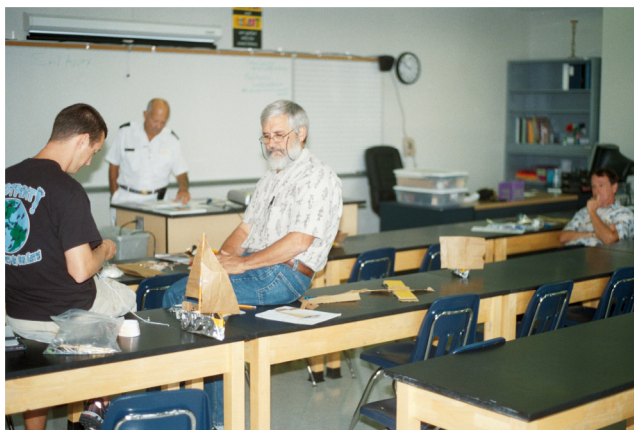
Larry Plank, Secondary Hillsborough Science Supervisor, requested the IEEE do a Teacher In Service Presentation on Sailing. IEEE member Bob Franklin and I met at Alonso High School on August 19th for the *Tampa Bay Professional Study Day* for Hillsborough County. Bob Franklin led the "Sail Away" project where he described his sailing experience to the five science teachers who attended. We challenged them to build sail boats out of materials we brought like cardboard, aluminum foil, pencils, etc. Afterwards we had two unique sailboats!

Some stated they were interested in learning how to sail for their own recreation. One teacher said he could integrate this project into a Physics discussion with his students to demonstrate Forces and Vectors. (Please see pictures for the Hillsborough Event on Sailing: 9_13 & 10_14) On Friday, August 21st, Ralph Painter led the presentation on Ohm's Law at Clearwater High School.

It was a pleasure being helped by IEEE Members David Figueroa, John West, Alex Yu and his son Jeffrey. Seven science teachers attended and gave positive remarks on the evaluation forms. Some of the topics suggested by the teachers included Series and Parallel Circuits, labs and information about technology applications to enhance my student's real-life knowledge. I had the pleasure of meeting Pinellas teacher Leslie Pohley after the presentations had concluded. Other Teacher In Service Lesson Plans are at the following URL: <http://www.ieee.org/web/education/preuniversity/home.html>.

We encourage every school to take a look at the lesson plans. Please contact me at venner20@ieee.org to ask an engineer to do a presentation for your school. Special thanks to Bob Franklin, Ralph Painter, John West, David Figueroa, Alex Yu, Larry Plank, and Blythe Lamy for making this week possible.

On August 17th, I also attended the first planning meeting for the Celebrate Engineering Banquet on February 19th, 2010. It looks like the banquet will be held at Tampa's Museum of Science & Industry (MOSI) 4801 E Fowler Avenue, Tampa, FL, 33617. Later this fall, I will be sending out the Lignell nomination forms to your Science Supervisor to be forwarded to all High Schools in your district. Please nominate a Science or Math High School Teacher who works in Pinellas, Pasco, and Hillsborough Counties.



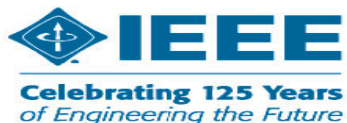
2010 Dues Notice

IEEE membership base dues for 2010 will be US \$134, a \$5 increase.

This increase is based on the rate of inflation as measured by the U.S. Consumer Price Index. To learn more, visit <http://bmsmail3.ieee.org:80/u/15283/69694>



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Or fax your address changes to (732) 562-5445

October 2009 Calendar of Events (For more information see P. 1) *inside this Signal...*

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
27	28	29	30	1	2 <i>Conference on Science and Innovation</i>	3 <i>See page 6</i>
4	5	6 <i>EXCOM Meeting at TECO Plaza see page 1</i>	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23 <i>Implement Volt/Var Seminar see page 6</i>	24
25	26	27 <i>Consultants Network Meeting, see page</i>	28	29	30	31