

The Florida West Coast Section of the IEEE

Serving over 2,300 members in Charlotte,
Citrus, DeSoto, Hardee, Hernando,
Hillsborough, Lee, Manatee, Pasco, Pinellas,
Polk, and Sarasota Counties



THE

SUNCOAST

SIGNAL

THE INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS, INC.

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

Volume 48 - No. 9

September 2005

Inside this Signal...

Page 2

Editor's Column
Lightning Master
Corporation

Page 3

IEEE GOLD
SP/COM Comments
LM—Hold the Date
IEEE Sections Congress

Page 4

NEC Grounding
Seminar Held
PES/IAS Chapter
Chair's Comments
Upcoming PES/IAS
Meetings

Page 5

IEEE Teacher In-Service
Program

Page 6

IEEE Research Experience
for High School Students

GE Instrument
Transformer Plant Visit

Page 7

Brain Teaser Challenge
Siliconexon, Inc.



Tell us why you value the
IEEE.



GE Energy Transformer Services

Date: Tuesday, Sept 20, 2005 Time: 6:00 PM
Location: 2001 US HWY 301, Palmetto, FL 34221
Cost: FREE (space limited to first 30)
RSVP: Online at: <http://www.ewh.ieee.org/r3/floridawc/>
Questions: Tom Blair at 813-228-1111, ext 34407 or thblair@tecoenergy.com

IEEE invites you to tour the General Electric Transformer Repair Facility in Palmetto.



Shell form transformer at
Florida facility

State-of-the-Art Technology

GE's transformer service center in Palmetto, FL is a state of the art facility for the repair and testing of core and shell formed transformers. They service all types of equipment from many OEMs. Some of the types of transformers in house include:


- Power transformers
- Phase shifters
- Distribution transformers
- Regulators
- Reactors
- Furnace transformers
- Rectifier transformers

Come join us for a very educational experience.



Membership Reasons

Get the IEEE Financial Advantage. More than 100,000 IEEE members worldwide currently use IEEE financial products and services - from credit cards to discounts on travel - negotiated exclusively for IEEE members and their families. Following are available Insurances currently available through IEEE

Tell your friends why you belong to the  IEEE

2005 IEEE EXECUTIVE COMMITTEE FLORIDA WEST COAST SECTION

CHAIR: Angela Alexander
Honeywell, 727-539-2331
Angela.alexander@ieee.org

VICE CHAIR: Jim Anderson
jim.anderson@ieee.org

SECRETARY: Jules Joslow,
ElectroMark, Inc. (800) 274-2383
jjoslowemi@aol.com

TREASURER: Ralph Painter,
Tampa Electric Co. (813) 228-4685
rdpainter@ieee.org

SIGNAL EDITOR: Dr. Paul Schnitzler,
PS&A (813)-994-2297
paulschn@ieee.org

AWARDS: Richard Beatie, PE
r.beatie@ieee.org

BYLAWS: Richard Beatie, PE, Consultant
(813)-289-0252
r.beatie@ieee.org

EDUCATION: Dr. Rudolf E. Henning and Zhen Tong
(813) 974-4782 or (727) 328-8777 (Ext: 333)
henning@eng.usf.edu or tong@ieee.org

PACE: Scott Haynes, Honeywell
(727)-539-3358, scott.haynes@ieee.org
Richard Martino, Consultant
(727) 536-1776, richard@richardmartino.com

MEMBERSHIP: Tom Blair, TECO Energy,
813-228-1111 (ext: 34407) tom_blair@ieee.org

STUDENT BRANCH CO-ADVISORS:
Dr. Rudy Schlaf, USF (813) 974-8463
schlafr@eng.usf.edu
Dr. Srinivas Katkoori, USF, (813)-974-5737
katkoori@ieee.org

STUDENT BRANCH MENTOR: Jim Howard
Lakeland Electric (813) 876-1748
j.howard@ieee.org

STUDENT BRANCH CHAPTERS:
Kristy Baksh, IEEE Student Chapter,
(813) 974-4776, kbaksh@eng.usf.edu
Upavan Gupta, IEEECS Student Chapter,
(813)-974-1348, ugupta@csee.usf.edu

PES/IAS CHAPTER: Ghaff Khazami
(813) 960-0990 gkhazami@megaway.com

MTT/AP/ED CHAPTER: Ken A. O' Connor
Raytheon Systems Co. 727-302-2357
Kenneth_A_O'Connor@raytheon.com

COMP/AESS CHAPTER: James S. Lumia
(813) 832-3501, jlumia@ieee.org

SP/COMM CHAPTER: Hüseyin Arslan
USF (813) 974-3940
arslan@eng.usf.edu

LIFE MEMBER CHAPTER: Jules Joslow
ElectroMark, Inc. (800) 274-2383
jjoslowemi@aol.com

GOLD: Dennis Trask, d.trask@ieee.org (813) 366-4201

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

WEB MASTER: Jim Anderson, jim.anderson@ieee.org

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 7th day of the month preceding the issue month. Address all correspondence to:
**Dr. Paul Schnitzler,
P S & A
30612 Nickerson Loop, Wesley Chapel, FL 33543
Telephone: (813) 994-2297
E-MAIL: paulschn@ieee.org
The Signal, Copyright 2005**

Editor's Column—Membership

In his July IEEE-USA President's Column, Gerard A. Alphonse calls on U.S. IEEE members to promote membership to their colleagues to help IEEE-USA remain a strong voice for engineers in the nation's capital.

Alphonse said that the IEEE-USA understands the imperative to increase member value and control costs. The alternative is to see the IEEE's U.S. membership continue to decline and watch our ability to provide valuable products and services to you, the U.S. member, diminish.

We cannot let this happen.

Excerpts from his column: IEEE-USA's great challenge is to show value for the assessment dollar collected. Currently, your dollars support four broad IEEE-USA program areas. 1—A voice in Washington on issues that affect our members and the profession such as retirement security, protection of intellectual property, and promotion of sound technology policies to enhance U.S. competitiveness.

2—IEEE-USA provides career and member services aimed at enhancing non-technical skills and promoting professional opportunities.

3—PACE supports efforts by local IEEE sections, chapters, student branches, regions and technical divisions to inform members of the non-technical components of an engineering career. For example, IEEE-USA has co-sponsored 32 S-PACs (Student Professional Awareness Conferences) at colleges and universities across the United States so far this year.

4—Our communications programs are designed to keep you informed of the products and services we offer, as well as keep you up to speed on issues affecting the profession.

For more information, go to <http://www.ieeeusa.org> —PS






Richard E. Beatie, P.E.
Regional Sales Manager

1351 N. Arcturas Ave. (33765) (800) 749-6800 Voice
Post Office Box 6017 (727) 580-3598 Cell
Clearwater, FL 33758-6017 (727) 499-0138 Fax
www.lightningmaster.com
RBeatie@LightningMaster.com



Membership Reasons

Did you know that the IEEE has a Computer Hardware & Software Purchasing Program; discount Office Supplies; Overnight Express Delivery Services; and a Mortgage service?

Tell your friends why you belong to the  **IEEE**

IEEE GOLD

Have you found a job? Want some insight and advice on landing your dream job, getting an advanced degree or just simply become the best in your field? Welcome to the IEEE Online Career Accelerator Forum. This interactive session is sponsored by the Spectrum, endorsed by the GOLD chapters and is open to all IEEE members. Save the date -: September 20th 2005—IEEE Online Career Accelerator Forum. For more information visit

http://www.spectrum.ieee.org/cef_info.

For information on this as well as other GOLD activities, subscribe to the GOLD Quarterly. You can subscribe by sending an email to: listserv@listserveieee.org Leave the subject field blank and in the body type “subscribe gold-rush.” This online newsletter provides an account of all activities within IEEE’s reach.

Don’t forget our first social event of the year! Join the FWCS Gold Members at the first tailgate party—September 3rd for the first USF Bulls Home Game!

Want to get involved with the FWCS GOLD Chapter! Send an email to goldfwcs@gmail.com —KB



Hold the Date!

The FWCS Life Member Chapter will be presenting a tour of the G.WIZ Hands-on Science Museum in Sarasota, FL which is tentatively scheduled for Oct. 27, 2005 at Noon. All Section members are invited. More details will be found in the Oct. issue of the Signal and on the FWSC Website as soon as they are firmed up.

Also watch for an announcement for a tour at the new Bishop Planetarium at the South Florida Museum in Bradenton to be held in early December.

Look for details for both events in the October Signal.



IEEE (Worldwide) Sections Congress October 14-17, 2005 [Tampa Marriott Waterside](#)

[IEEE Sections Congress 2005](#) will be held 14-17 October 2005 at the Tampa Marriott Waterside, Tampa, Florida, USA. The theme of the event is "Promoting a World-Class Volunteer Community". The three program tracks are: Membership; Section Operations; and Relationships. The Relationships track is entirely new for 2005, and will address the relationships between IEEE Sections and internal and external organizations and the community.



Signal Processing and Communications Society Chapter Vice Chair’s Comments

—By Doug Chronister

Hello FWCS IEEE Signal Processing and Communications Society members and all of FWCS IEEE membership. Please allow me to introduce myself. My name is Doug Chronister. I have been in the St Petersburg, FL area for 4 years and I am employed by Raytheon. I work in their Joint Sensor Networking group.

Recently, I have taken on the role of Vice Chair for the joint Chapters of Signal Processing and Communications (SP/COM) societies within in the FWCS. I am supporting the Chair of SP/COM, Dr. Huseyin Arslan who is an Assistant Professor in the Electrical Engineering Department at the University of South Florida. Dr Arslan is involved in the Wireless Research Group along with the Wireless Communications Signal Processing Laboratory at USF. More details about Dr Arslan's research interests and USF's Wireless Research Group can be accessed via <http://www.eng.usf.edu/~arslan/> . To round out the team Mr. Jamal Haque from Honeywell will act as Treasurer and Secretary for our group.

The local SP/COM society has not been active due to a change in leadership and travel during the summer months. We plan to become active again over the next months and take this opportunity to let the membership know this. We are actively looking for local speakers with the goal of having two meetings before year's end. Details will be provided at a later time. If there is a way we can meet the needs of more people in the FWCS we want to know. Please feel free to contact Dr Arslan (arslan@eng.usf.edu) or myself (dchronister@ieee.org) with your ideas. Thanks for your time and we look forward to serving you.

Great Seminar on NEC Grounding and 2005 Code Changes.

Were you one of the attendees to the IEEE/IAEI join seminar on the NEC? Mr. Jim Pauley of Schneider Electric/ Square D gave a very informative seminar on Code requirements for safe installations. The morning session covered grounding requirements of the NEC and the afternoon session covered changes to the 2005 NEC. Many thanks to Mr. Pauley, Schneider Electric and IAEI for their work on arranging this training session.

IAEI (International Association of Electrical Inspectors) is a group dedicated to the safety of electrical installations. They are a very good resource for Code compliance issues. Their web site can be found at <http://www.iaei.org/>.

The local Suncoast Section of IAEI puts on several training seminars annually. Their next scheduled session will cover more details of the National Electrical Code and will be held in October. For further information on future IAEI meetings, you can contact Mr. Bob Moore at cirem@tecoenergy.com or Tom Blair @ tom_blair@ieee.org.



Upcoming PES/IAS Meetings/Seminars

Look for upcoming Signals for more Information related to the following meetings and Seminars:

Series of Power Transmission Planning meetings and seminars. This program will start during the last quarter 2005 and continued until the first quarter of 2006.

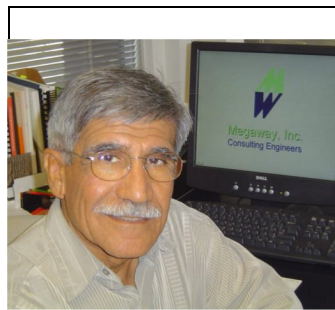
Tour of Hillsborough County Garbage Burner Plant for month of September 2005.

Tour of GE Transformer plant in Bradenton for month of October 2005

Update on the Gulf Stream Gas Pipelines, Luncheon meeting at TECO Hall November 2005.

Your PES/IAS Chapter is continuously looking for suggestions for events and meetings that would be beneficial to our local members. If you have any suggestions or if your company would like to sponsor a meeting or tour, please contact Ghaff Khazami at gkhazami@megaway.com or Tom Blair at tom_blair@ieee.org

PES/IAS Chapter Chair's Comments—By Ghaff Khazami, P.E.



Here is a brief overview of what we have accomplished so far during the year 2005. During the last eight months we have organized and coordinated four seminars on the most wanted subjects, Power Quality, Substation Auto-

maton, Power System and Substation Grounding and the National Electric Code Review. Also during the first eight months of 2005 we have organized and coordinated several meetings and facilitated tours. The list tours we conducted are: Calpine Energy Center, GE Instrument Power and Transformer Plants

Our goal is to coordinate at least one event each month, the numbers indicate that we have done very well but there are some areas that require improvement such as attendance, the average for each event is 28 and I am sure we can improve it to a higher number in the coming months.

We need to reach out to the members and the community as a whole, our communication resources are very good. We are working to improve the weak areas and bring newer subjects to discuss with the members and update their technical knowledge, but we need to add new topics to serve the interest of all members, power engineers and Industry Applications interests.

For the remaining part of this year we are planning to provide a series of seminars and meetings related to the Power Transmission Planning and Updating you on the Utilities plan for Grid Florida and the Gulf Stream Gas Pipeline. Plus other one-hour luncheon meetings on a variety of subject matters that pertain to the members interests. We will do our best to fulfill our commitment and would like to ask each reader of this newsletter to give us their input as to particular subjects as well.

Our accomplishments were with team work and effort from all the participants. I greatly appreciate the utilities (TECO, SEC and LEC) who donated their conference rooms for our meetings as well as the companies who provided us a tour of their facility. Many thanks to PES/IAS chapter Executive committee for their time and effort: Jim Howard, Art Nordlinger, Tom Blair, John Stankowich and Jim Beall.

The IEEE Teacher In-Service Program—Sean Denny

The IEEE Teacher In-Service Program was launched in Atlanta on July 22-23, 2005. Doug Gorham and the Florida West Coast Section's own Ralph Painter were the facilitators of the event. Also Jim Howard, Carlo Dionson, and Sean Denny from the FWCS attended. All were treated to great buffet meals courtesy of the Atlanta Airport Hilton.

According to the workshop agenda the goals included: "Empower Section "champions" to develop collaborations with their local pre-university community to promote applied inquiry-based learning; Enhance the level of technological literacy of pre-university educators; Encourage pre-university students to pursue technical careers, including engineering; and Increase the general level of technological literacy of pre-university students for many years."

The workshop opened on Friday, July 22nd with a mock example of how the section champions should handle a Teacher In Service presentation. It was achieved through hands-on activities demonstrating engineering principles. During the Saturday morning workshop, trainer packets were distributed to a larger assembly. The facilitators discussed how to get started and handle the costs. The workshop concluded with a panel discussion of educators who answered questions from the 23 sections represented from Region 3. The educators commended the IEEE on their important contributions. In an exclusive video interview, Doug Gorham explained that "IEEE volunteers will promote technological literacy which will provide for future generations." Sean, Jim, Carlo and Ralph will arrange presentations for educators throughout the Tampa Bay schools.

Here are some photos of the group having fun.



IEEE Research Experience for High School Students

—By Carlomagno B. Dionson

During the summer, the IEEE FWCS, once again, along with USF's College of Engineering supported a program that was geared towards allowing exceptional high school students to participate in various fields of engineering research at the University of South Florida. The Research Experience for High School Students (REHS) program received about 11 applications and of those, seven did research work under the guidance of a mentor.

The second year of the program consisted of the following:

1. Matt Visokay and Corey DeMontigny mentored by Eduardo Veras
2. Allison Belle mentored by Anthony Cascio
3. Dilip Kamath and Brian Wilcox mentored by Josh Schumacher
4. Mark Nuguid mentored by Yeshwant Venkatraman
5. Brent Savage mentored by Sridevi Vakkalanka



The REHS group having lunch with the Dean of USF's College of Engineering.



The students helped out on various projects such as electrospray, solar cells, rehabilitation robotics, etc. Two of the students already were in a robotics group in high school and their research experience greatly enhanced their skill in the subject. The other students had no background experience in their research fields, but they echoed the same sentiment that the experience thought them a lot.



Overall, this year was another successful run for the program. Next year's goal is to have more students and more engineering disciplines participating. Not only that, but letting potential EE students know about IEEE early will hopefully encourage them to participate in future student activities.

—Photos by CBD



Great Tour of GE Instrument Transformer Plant in Clearwater

—Tom Blair



Were you one of the attendees to the July tour of the GE Instrument Transformer facility in Clearwater? GE provided a very informative and educational tour. They had demonstrations of their various manufacturing processes from transformer winding manufacturing area, to their area for their transformer housings, to their test and QA area. They had demonstrations of projects in all these areas.

We are very grateful for all the extra effort GE went to to put on the tour for us. Many thanks to the following GE volunteer tour guides for the time and expertise during the tour; Carl Clemens, Kent Jones, Michael Hass, Brian Sonnenberg, Hyo Kim, Mike Canaveral, Kathleen Schooley, Lina Ortega. Thanks also to all the GE employees who also worked on arranging this tour to make it successful.

A special thank you to Rob McElhaney and Chip Dellinger of GE for their help in getting this tour setup for our IEEE section.

Brain Teaser Challenge Column —By Butch Shadwell

August BTC – Tony’s dance ambitions led to last month’s problem, “... The letters would be formed by LEDs flashing on briefly so that dots appear in the travel of his foot. The vertical spacing of these dots is $\frac{1}{4}$ ” due to the mounting on the shoe. Horizontal spacing is a function of the flash rate vs the rate of movement of Tony’s foot around the arc. If Tony’s extended leg is 34” long and he swings it at 2 seconds per revolution, what flash rate will give you the same horizontal pixel resolution as the vertical for the raster display on this cylinder?”

Tony’s dancing shoe will be a sight to behold. The flash rate will be equal to the number of $\frac{1}{4}$ inches per second that his foot moves along the circle of his leg swing. To get the inches per second $\text{in/sec} = (2 \cdot \pi \cdot 34") / 2 \text{ sec} = \pi \cdot 34"/\text{sec}$. This result times 4 will give us the flash rate for $\frac{1}{4}$ ” pixels, or 427 pulses/sec will give us $\frac{1}{4}$ ” by $\frac{1}{4}$ ” pixel resolution. But I bet you already knew that.

September BTC – One definition of the word “lycanthropy” is the ability to change oneself or another into a wolf. At least for hundreds of years and perhaps longer, people have feared the possibility of meeting a werewolf under a moon lit night sky. There are many stories about these mythical creatures, but it is widely held that they can only be killed by a silver bullet.

As it turns out I suspect one of our Region 3 officers of being a werewolf and I have found a recipe for werewolf detector solution that requires one mole of silver nitrate. I have a cookie jar full of this powder, but I need one of you to tell me how much a mole of silver nitrate weighs. Please hurry with the calculation, I think a full moon is expected soon.

Reply to Butch Shadwell at 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.

(Advertisement)

You can have your company displayed here in

THE SUNCOAST SIGNAL

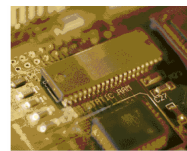
Business cards, quarter-page, and full page are available. We can also take your inserts.

The Suncoast Signal offers advertisers access to a focused target audience of electrical, electronics and computer engineers in central Florida at a very low price.

As with any publication, our postal circulation varies monthly, but always exceeds 2,000. The overall average for The Suncoast Signal is 2,300; this does not include the many distributed at meetings and elsewhere. There is an additional nationwide mailing of about 75.

Furthermore, since The Suncoast Signal is on the IEEE Florida West Coast Section website, you get even more coverage.

For rates and details contact the Editor at 813-994-2297 or paulschn@ieee.org.



Siliconexion, Inc.

FPGA Design and Verification Experts

Siliconexion offers robust, on-time electronic design consulting services by experienced senior level professionals.

Applications Include:

Telecommunications / Data Communications
Aerospace and Military
Embedded Computer Systems

Services Include:

FPGA / CPLD Design and Verification
ASIC to FPGA Conversions
Training for FPGA Design, VHDL, Test Benches
Digital and Analog Board-level Hardware Design
Embedded Systems Software Development
High Speed Signal Integrity Analysis

***Cost Effective sub-system or
turnkey product development***

Phone: 727 596-1990
E-mail: info@siliconexion.com
www.siliconexion.com

September 2005 Calendar of Events

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		30 <i>10 AM: Bay News 9 Studios Visit, St. Petersburg</i>		1	2	3
4	5	6 <i>5:30PM: IEEE FWCS ExCom Meet'g, TECO Hall, Tampa</i>	7	8	9	10
11	12	13	14	15	16	17
18	19	20 <i>6:00PM: GE Energy Transformer Services, Palmetto</i>	21	22	23	24
25	26	27	28	29 <i>6AM PE/IA ExCom Meeting Village Inn, Tampa</i>	30	31

Institute of Electrical and
Electronics Engineers, Inc.
Florida West Coast Section
3133 W. Paris
Tampa, Florida 33614



Sections Congress 2005 is coming to Tampa!

NON PROFIT
ORG
U.S. POSTAGE
PAID
TAMPA, FL.
PERMIT
No. 1197

DATE SENSITIVE MATERIAL. DO NOT DELAY

Change of address? IEEE Web Contact Update <http://www.ieee.org/membership/coa.html>

Or send address changes including your name, IEEE Member number and all pertinent information to:

IEEE, 445 Hoes Lane, P.O. Box 1331, Piscataway, NJ 08855-1331 or call (800) 678-4333

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