



**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.*

**Volume 51 — No. 1**      <http://www.ieee.org/fwcs>      **January 2008**



*Inside this  
Signal...*

*Page 2*

- \* 2008 & Energy
- \* LightningMaster
- \* Mantini Concert

*Page 3*

- \* Siliconexion
- \* Chair's Column:  
Celebration Banquet
- \* Engineer's Week  
Luncheon

*Page 4*

- \* 2008 Transmission &  
Distribution Conference
- \* Red-Book Meeting
- \* Life Members' Meeting

*Page 5*

- \* USF Student News

*Page 6*

- \* MTT/AP/ED Notes
- \* Dist. Systems
- \* Computational  
Intelligence
- \* Solar Energy

*Page 7*

- \* Nolan Power
- \* Brain Teaser  
Challenge
- \* PE/IA Transformer  
Seminar
- \* IEEE-USA Scholarship



*This Month's Meetings*



*Distribution System  
Reliability & Solutions*

Friday, January 18th, 2008

Registration: 8:30AM – 9:00AM, Seminar 9:00AM – 2:00PM

Speaker: Charlie Williams, S&C Electric

Distribution Reliability has become a much discussed topic over the last several years. This applies to both inside large industrial plants and for local electric utilities. This course will offer the attendee a chance to understand the basic reliability measurements used (SAIDI, CAIDI, SAIFI, etc.) as well as the tools to improve the reliability of an electric system. [For more, see p. 6]



**Happy New Year**

**THE FLORIDA WEST COAST SECTION WISHES ALL  
A HAPPY, PROSPEROUS, AND SAFE COMING YEAR.**



*Life Members' Meeting*

Saturday, January 19, 2008—12:00 Noon, but come early.

Red Lobster 6151 34th St N, St Petersburg, FL 33714

Bob Franklin, Life Member, will give an overview of his research on small Solar Electricity Systems for home use. All members and their guests are welcome to attend. [For more, see p. 4]

## 2006 IEEE EXECUTIVE COMMITTEE FLORIDA WEST COAST SECTION

CHAIR: Jim Anderson 813-425-2467  
[jim.anderson@ieee.org](mailto:jim.anderson@ieee.org)

VICE CHAIR: Tom Blair, TECO Energy,  
813-228-4407 [tom\\_blair@ieee.org](mailto:tom_blair@ieee.org)

SECRETARY: Serge Beauzile, 813-651-2923  
[sbeauzil@yahoo.com](mailto:sbeauzil@yahoo.com)

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

SIGNAL EDITOR: Dr. Paul Schnitzler,  
USF PS&A (813)-974-5584 [paulschn@ieee.org](mailto:paulschn@ieee.org)

AWARDS & BYLAWS : Richard Beatie, PE, Lightning Master  
(727) 580-3598 [r.beatie@ieee.org](mailto: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](mailto:henning@eng.usf.edu) or [tong@ieee.org](mailto:tong@ieee.org)

MEMBERSHIP: Tom Blair, TECO Energy,  
813-228-4407 [tom\\_blair@ieee.org](mailto:tom_blair@ieee.org)

TEACHER IN-SERVICE: Sean Denny, [Yenner20@aol.com](mailto:Yenner20@aol.com)

PES/IAS CHAPTER: Tom Blair, TECO Energy,  
813-228-4407 [tom\\_blair@ieee.org](mailto:tom_blair@ieee.org)

MTT/AP/ED CHAPTER: Ken A. O' Connor  
[kenoconnor@ieee.org](mailto:kenoconnor@ieee.org)

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

EMBS: Engineering in Medicine & Biology: Dr. Ravi Sankar:  
813-974-4769 [sankar@eng.usf.edu](mailto:sankar@eng.usf.edu)

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

WIE: Women in Engineering: Suzette Presas (813) 974-4851  
[spresas@mail.usf.edu](mailto:spresas@mail.usf.edu)

LIFE MEMBER AFFINITY GROUP: TBD

GOLD: Tim Doolittle, [tdoolittle@tmdvault.fastmail.fm](mailto:tdoolittle@tmdvault.fastmail.fm)

PACE: Scott Haynes, Honeywell (727)-539-3358,  
[scott.haynes@ieee.org](mailto:scott.haynes@ieee.org)

James S. Lumia (813) 832-3501, [jlumia@ieee.org](mailto:jlumia@ieee.org)  
Richard Sanchez

STUDENT BRANCH CO-ADVISORS:

Dr. Paul Schnitzler, USF PS&A (813)-974-5584  
[pauls@eng.usf.edu](mailto:pauls@eng.usf.edu)

Dr. Chris Ferekides, USF, (813) 974-4818  
[ferekide@eng.usf.edu](mailto:ferekide@eng.usf.edu)

Dr. Srinivas Katkoori, USF, (813)-974-5737  
[katkoori@ieee.org](mailto:katkoori@ieee.org)

STUDENT BRANCH BRANCH MENTOR: Jim Howard,  
Lakeland Electric (863) 834-6506 [j.howard@ieee.org](mailto:j.howard@ieee.org) (H) (813)  
876-1748

STUDENT BRANCHES:

Manuel Bravo IEEE, [mbravo@mail.usf.edu](mailto:mbravo@mail.usf.edu)

Upavan Gupta, IEEECS (813)-974-1348, [ugupta@csee.usf.edu](mailto:ugupta@csee.usf.edu)

CONFERENCES: Jim Beall, [j.beall@ieee.org](mailto:j.beall@ieee.org)

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

WEB MASTER: Michelle Chang, [michelle.chang@ieee.org](mailto:michelle.chang@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 1<sup>st</sup> Friday after the 1<sup>st</sup> Tuesday of the month preceding the issue month.

Address all correspondence to:

Dr. Paul Schnitzler, P S & A USF

30612 Nickerson Loop, Wesley Chapel, FL 33543

Telephone: (813) 994-2297; (813) 974-5584

E-MAIL: [paulschn@ieee.org](mailto:paulschn@ieee.org)

The Signal, Copyright 2007

## 2008 and Energy (Editor's Column)

In a recent Op-Ed piece in the New York Times, Thomas Friedman wrote "I still don't know what Bali was about, but I do know that it was incremental, not transformational — and incrementalism, when it comes to clean energy, is just a hobby."<sup>1</sup>

Friedman is making the point that the combined problem of global warming and limited oil cannot be solved by small, incremental changes and that is all that most efforts are addressing. Progress Energy has a biofuel plan with the capability of providing "about 280 megawatts of renewable power" which will go on line in about 2011.<sup>2</sup> This will be capable of supplying power to only about 10 percent of Progress' customers. Most other initiatives are similar; they provide only incremental effects.

To deal with this problem we need ideas and actions which will be transformational. Who will be able to step up to this challenge...and when?

Make 2008 the year you ask your friends, associates and, especially, political representatives to deal with this...and NOW. —PS



**LightningMaster**  
Corporation

**Richard E. Beatie, P.E.**  
Director Of Engineering  
Structural - Bonding/Grounding - Surge

1351 N. Arcturas Ave. (800) 749-6800 Voice  
Clearwater, FL 33765 (727) 580-3598 Cell  
(727) 499-0138 Fax

[www.LightningMaster.com](http://www.LightningMaster.com) RBeatie@LightningMaster.com

[Web Site](#) [Email Me](#) [Map to Us](#)



## 12th Annual Franz Mantini – USF Scholarship Concert.

Saturday, February 2, 2008, electrical engineer and acclaimed pianist Franz Mantini will be joined by violinist Amy Schwartz Moretti and violinist Chen-Yen "Brian" Chen in Mantini's annual concert to benefit scholarships at the University of South Florida colleges of Fine Arts and Engineering. The College of Engineering Franz Mantini Scholarship provides support to Engineering students with priority given to students involved in extracurricular activities.

The performance is at the Tampa Bay Performing Arts Center, Saturday, February 2, 2008 at 7 p.m. For tickets, visit the box office or on line at [www.tbpac.org](http://www.tbpac.org). Approximate running time is one hour and 45 minutes with a 15-minute intermission. Tickets are \$25, \$10 for seniors and students.

<sup>1</sup> [http://www.nytimes.com/2007/12/19/college/coll19friedman.html?\\_r=1&oref=slogin](http://www.nytimes.com/2007/12/19/college/coll19friedman.html?_r=1&oref=slogin)

<sup>2</sup> St. Petersburg Times, December 19, 2008, p. D-1

*It's Almost Here  
– The Celebrate Engineering Banquet!*

The 8th annual Celebrate Engineering Banquet will be held at the fabulous A La Carte Pavilion on Friday, February 15th, 2008. This popular event is expected to once again sell out quickly. Engineering is a demanding profession that only a select few have the drive and determination to enter and remain in. We all know that we are part of an exclusive club of fellow engineers whose work does actually change the world that we live in. The Florida West Coast Engineering Alliance's Celebrate Engineer Banquet is the once-a-year opportunity to celebrate our shared profession, get an award, or at least cheer on a buddy who is getting an award.

The Florida West Coast Engineering Alliance was created to further the engineering and allied technical professions by recognizing individual achievement and encouraging cooperative activities in these professions. This premier event brings together our local leaders and engineering professionals to recognize the outstanding achievements of Engineers, Science & Math Teachers, and Students in our community. As a bonus for you, if you have been too busy to do any professional networking this year, you can make up for this by attending this banquet.

Space is limited! This event is always well attended, so register for this event now before tickets run out. Visit us on the web at: <http://www.ieee.org/fwcs/celebrate>

Mark your calendars for Friday, February 15th, 2008 (it's much closer than you might think!) and we'll see you at the Celebrate Engineering Banquet!

—Jim Anderson, Section Chair



**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](mailto:info@siliconexion.com)  
[www.siliconexion.com](http://www.siliconexion.com)

**Siliconexion, Inc.**



**\*\*ENGINEER'S WEEK LUNCHEON\*\***  
**Nuclear, Renewable and Emerging Issue**



Date: Friday, February 22nd, 2008  
Time: Lunch Meeting:  
Registration 11:30-12 noon,  
Speaker 12 noon-1:30pm  
Location: TECO Plaza (702 N. Franklin St)

Cost: \$10 Members , \$20 Non-Members.  
RSVP: <http://time2meet.com/fwcs-pes2/index.html>  
Space limited to the first 50 registrants!



Speaker: **Dale Oliver**, Vice President of Transmission Planning and Operation, Progress Energy Florida

Nuclear Energy in Florida is getting to be the most promising generation for the state due to many factors. Mr. Oliver will discuss these issues and the plans Progress Energy Florida has to address them.

Questions: Serge Beauzile at 727-344-4123 or [Serge.Beauzile@pgnmail.com](mailto:Serge.Beauzile@pgnmail.com)



## ***2008 Transmission And Distribution Conference And Exposition Features Exhibits From Hundreds Of Companies***

April 21-24, 2008, McCormick Place—Chicago IL

Millions of dollars worth of product innovation, technology and equipment will be on display

***Powering Toward the Future*** has been selected as the theme for the event. The event has been created to provide attendees with information that concentrates on the world of transmission and distribution and all of its elements.

With the electric utility industry facing the continuing challenges of system reliability and the need to improve operating efficiencies, this year's event takes on added importance. Electric utilities are in need of the best technological and product solutions to allow them to improve their operating performance.

“By attending the 2008 event,” says Carl Segneri, conference chair, “attendees will be introduced to hundreds of manufacturers of transmission and distribution equipment and service—from the most advanced automation systems and components to other related suppliers and service companies. Every manufacturer who has something to offer will be at this year's event to introduce and explain their products.”

Besides exhibits, the event will feature plenary sessions, business and technical paper presentations and group panel discussions. The business and technical program will examine the impact of technical and business solutions, methods and procedures for operating, and maintaining power-delivery systems at peak levels.

This year's event will draw attendees from domestic and overseas-based power-delivery companies and organizations, including: investor-owned utilities; municipal electric utilities and rural electrics; federal power agencies; publicly-owned electrics; and more

**For more information please access the event website at [www.ieeet-d.org](http://www.ieeet-d.org).**



### ***IEEE/USF EXPO***

Don't Forget

Mid-February 2008, College of Engineering, Tampa campus.

## ***Did You Miss it?***

On December 14th, 2007 the PE/IA Chapter presented a seminar on the IEEE Red Book - IEEE Standard 141 at USF.

Tom Blair was the instructor and Dr. Ralph Fehr helped coordinate this program. We had 37 people registered for this seminar and everyone seemed to gain a lot from the information presented. Be sure and watch for more upcoming seminars and meetings from your PE/IA Chapter.



Tom Blair, the speaker



The class



## ***Life Members' Meeting***

January 19, 2008—12:00 Noon, but come early.

Red Lobster 6151 34th St N, St Petersburg, FL 33714

Bob Franklin, Life Member, will give an overview of his research on small Solar Electricity Systems for home use. All members and their guests are welcome to attend.

Contact: Bob Franklin at [BoatSeven@aol.com](mailto:BoatSeven@aol.com) or Jack Killingsworth at [Jack@JackKillingsworth.com](http://Jack@JackKillingsworth.com)

## USF Student Branch Activities



### Senior Banquet

The USF student chapter of the IEEE held their Graduating Senior Banquet on December 7<sup>th</sup> at Teco Hall (USF). The event was very well attended with about 60 guests in attendance. Our guest speaker was Dr. Michael Kovac – former Dean of the engineering college – who gave an inspiring talk to the graduating class inviting them to use their skills and knowledge to engage themselves in activities beyond their engineering profession, for the betterment of society.

Dr. Ralph Fehr announced the top three senior design posters – all of which – will receive a small prize courtesy of our student chapter. The IEEE is grateful to all the sponsors and the SG for their support of this event. Congratulations to the graduating class and the IEEE officers for organizing a great event.



Some of the graduating senior EE's



Dr. Ferekides, Ms. Irene Wiley and Ms. Tracey Sawyer



Dr. and Mrs. Michael Kovac



### S-PAC

The Students' Professional Awareness Conference (S-PAC) was held November 20<sup>th</sup>, 2007 in TECO Hall on the Tampa, USF campus. Its theme was "Post Bachelor Degree Options" and it featured these speakers and titles:

- Ms. Diane Russell (Career Center)  
*"What the Career Center does for you"*
- Dr. Kenneth Buckle (Electrical Engineering)  
*"The importance of Graduate School"*
- Professor Dolores Gooding (Industrial & Management Systems Engineering) *"The Benefits of Management"*
- Dr. Paul Schnitzler of (Industrial & Management Systems Engineering) *"Creativity in Engineering"*

Attendance during the conference varied as students walked in and out during the event; and overall up to 50 students participated. The event was advertised via e-mail and posted flyers. The target audience was undergraduate students. For the future, the Branch may consider a topic that is also of interest to Graduate students such as input from speakers from companies that hire students. The event was free for all who attended.

Seventeen of the students attending completed surveys during the conference. Overall the students were optimistic about future S-PACs and found the conference useful.



Professor Gooding speaking on Engineering Management



Professor Schnitzler diving into a topic that is not traditionally discussed in Engineering



## FWCS MTT/AP/ED Chapter News

Happy 2008! I hope everyone had a great holiday. I certainly did! It's always nice to spend some time with family and friends and get back to what life is all about.

For 2008, the FWCS MTT/AP/ED Chapter is planning a great year. We already have two speakers scheduled and we're working to get at least 3 more.

First, we have Dr. Koichi Ito from Chiba University in Chiba, Japan. He will be speaking at TRAK Microwave on Thursday, February 26th, 2008 at 6:00pm. The topic is yet to be decided so keep an eye out for an update in next month's Suncoast Signal and visit the Florida West Coast Section website often to keep abreast of all the upcoming meetings in the Section. You can find it at <http://www.ewh.ieee.org/r3/floridawc/>. Please RSVP with name and country of citizenship to [koconnor@trak.com](mailto:koconnor@trak.com) or (813) 901-7246 by Wednesday, February 20th, 2008.

Then, we have Dr. Richard Snyder on October 9, 2008. He will present "Practical Aspects of Microwave Filter Development". This meeting will also be held at TRAK Microwave in Tampa, FL.

So mark your calendars and show your support for your IEEE Chapter!  
—Ken O'Connor



## Florida West Coast Section Computational Intelligence Special Interest Group Forming

If you would like to network with Florida West Coast Section (FWCS) members interested in computational intelligence, please send an e-mail to Steve Hershey at [shershey@ieee.org](mailto:shershey@ieee.org). We are forming a special interest group which will eventually lead to the formation of a FWCS Computational Intelligence Society chapter.



## Solar Energy—Request For Help

Life Members Bob Franklin and Jack Killingsworth are developing a portfolio of information about small Solar Electricity generation for home use. We would greatly appreciate contact with FWCS/IEEE members with direct and current knowledge on the subject.

Bob Franklin, [BoatSeven@aol.com](mailto:BoatSeven@aol.com)

Jack Killingsworth, [Jack@JackKillingsworth.com](mailto:Jack@JackKillingsworth.com)



## Distribution System Reliability & Solutions

Date: Friday, January 18th, 2008

Time: Registration: 8:30AM – 9:00AM, Seminar  
9:00AM – 2:00PM

Speaker: Charlie Williams, S&C Electric

Location: Seminole Electric (16313 N. Dale Mabry Highway)

Cost: \$75 Members, \$125 Non-Members. (Includes Lunch)

PDH Credits: 4 professional development hours will be awarded. (For USF students a certificate for course completion will be provided.) Be sure to enter your name and PE number on the signup website as it appears on your license. Florida exempt provider #00015.

RSVP: Online at:  
<http://time2meet.com/fwcs-pes4/index.html>

Make checks payable to: IEEE FWCS

Send checks to: Ralph Painter, IEEE FWCS Treasurer  
648 Timber Pond Drive  
Brandon, FL 33510-2937

Space limited to the first 50 registrants!!!

Questions: Jim Howard at 863-834-18865 or  
[j.howard@lakelandelectric.com](mailto:j.howard@lakelandelectric.com)

Distribution Reliability has become a much discussed topic over the last several years. This applies to both inside large industrial plants and for local electric utilities. This course will offer the attendee a chance to understand the basic reliability measurements used (SAIDI, CAIDI, SAIFI, etc.) as well as the tools to improve the reliability of an electric system.

Additionally, you will be given an in-class assignment to complete for improving the reliability of a given electric line with certain designed reliability concerns.

The course content this class will cover includes:

1. Fault prevention and fault mitigation techniques
2. Targeted Reliability Improvements
3. Optimization of an Integrated reliability program
4. Predictive Reliability Analysis of Feeders
5. Distribution Automation reliability benefits
6. Fuse save vs. Fuse blow protection schemes
7. How Faults Really Work

## Brain Teaser Challenge Column

—By Butch Shadwell

**December BTC** In the high school science project we discussed last month I asked the following PWM problem. “If we used a DC PWM controlled resistive heater, how many bits do we need in the duty cycle register to allow us to control the heat input to 1 part in 10,000? Assume the resistance of the heating element is constant for this problem. You’re lucky I didn’t ask you about a voltage controlled heater.”

PWM stands for pulse width modulation. In this problem the power to the heating element is turned on and off based on a timer using an oscillator and a binary counter. If the pulse width counter is set equal to half of the period counter, the heater is turned on only half of the time. The number of counts in the rollover period of the counter determines the resolution of the pulse control system. So how many bits do you need to have at least 10,000 states for the counter? A 10 bit counter has a maximum of 1024 states. A 14 bit counter with 16,384 states would be the smallest binary counter with at least 10,000 states.

By the way, power varies as the square of the voltage with a resistive load,  $P=E^2/R$  right. Does the heat output respond linearly to varying pulse width in the system described above? The answer is yes as this problem was defined.

**January BTC** As I write this column Christmas day is fast approaching. This season always makes one think of family ... the good, the bad, and the ugly. Just about every family has their black sheep. That cousin, brother, aunt, or uncle, that everyone hopes won’t make it to the celebration this year. Maybe you are the one they dread. Anyway, my family has one too. My Uncle Gary can be such a pill. He’s the type who doesn’t care if he insults people, and always tries to sound more important than he really is.

This year Gary came to a pre-Christmas gathering carrying on as usual. One of his less attractive behaviors is always trying to get professional consulting for free from other family members. Now this doesn’t sound that bad at first, but he is unrelenting and sometimes you just don’t want to talk shop at a festive family gathering. So this year he comes up to me with a plan for several new earth shaking inventions. One was for a perpetual light source by hooking an LED to a photo-voltaic cell, where the LED illuminates the photocell (think about it). He also wanted me to help him design an electric tooth brush. To this end can you tell me the maximum power output I can get from a 1.5 volt battery with an internal resistance of .1 ohms?

**For the BTC:** 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.



**NOLAN POWER GROUP**  
Power Quality Specialists  
Sales – Service

Batteries / Chargers / UPS  
PM Service / Capacity Testing  
Emergency Call Out

john.todora@nolanpower.com  
Phone: 954-333-3040

Authorized EnerSys Representative



## PE/IA Coming Transformer Seminar

The DOE (Department of Energy) has recently made a ruling on the energy efficiency of new power transformers. This ruling will have an impact on what companies are able to purchase in the way of transformers. Your PE/IA Chapter is presently in the planning stages of a seminar to cover this ruling (tentatively planned for March). Watch upcoming newsletters for more information on this and other meetings and seminars your PE/IA Chapter is planning for 2008.



## \$10,000 In Scholarship Prizes To Be Awarded

WASHINGTON (11 October 2007) — IEEE-USA is launching an online engineering video competition for undergraduate engineering students on "How Engineers Make a World of Difference," and will award seven scholarship prizes totaling \$10,000 to the undergraduate students who create the most effective 90-second video clips aimed at an 11-to-13-year-old student audience. The clips should reinforce engineers' contributions to the quality of life and help debunk engineering stereotypes. In addition to the scholarship prizes, winning entries will be shown during National Engineers Week 2008 and displayed on IEEE.tv and SPECTRUM Online.

The competition is open to all U.S. undergraduate students in engineering. Time is short: Entries must be submitted through YouTube by midnight Eastern Time on Friday, 18 January 2008.

For more information on how to enter the IEEE-USA Online Engineering Video Scholarship Competition, and upload an entry on YouTube, go to [http://www.ieeeusa.org/communications/video\\_competition/](http://www.ieeeusa.org/communications/video_competition/)

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

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
30		1 <i>Happy New Year</i>	5	3	4	5
6	7	8 <i>5:30 pm</i> <i>IEEE FWCS ExCom TECO Tampa</i>	9	10	11	12
13	14	15	16	17	18 <i>8 am</i> <i>Distribution Seminar Seminole El. Tampa p 6</i>	19 <i>Noon</i> <i>Life Members St. Petersburg p. 4</i>
20	21	22	23	24	25	26
27	28	29	30	31	1	2

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



*Florida West Coast Section, 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