



THE SUNCOAST SIGNAL

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September 2000

Joint Florida West Coast Section and Life Members Chapter Meeting **Are Power Lines and Cell Phones Unsafe?**

J. Robert "Bob" Ashley, IEEE Life Fellow

- Date/Time: 2000 September 21, Thursday, 12:00 noon
- Location: John Ringling Blvd., Sarasota, FL
Please call Bob Ashley at (813) 961-7617 for exact location & directions
- Reservation: Please E-mail Bob Ashley, j.ashley@ieee.org or phone (813) 961-7617 to make your luncheon reservation before 2000 Sept. 15.
- Cost: \$15 for members, \$20 for non-members, \$5 for student members.
The luncheon will be followed by an informal lecture.

IEEE interest in these safety issues is shown by the publication of a Speakout Editorial by the speaker in the 2000 July IEEE Spectrum and a full article by Dr. Kenneth Foster and Dr. John Moulder in the 2000 August IEEE Spectrum. The questions about power lines were raised in epidemiology studies in Denver, Colorado, and have yet to be adequately answered. The speaker will further explain why an epidemiology study in Sweden caused him to reverse his opinions about the possible power line links to cancer. The cell phone questions are variations on the long-standing theme of low level or "non-thermal" effects allegations. The work of developing IEEE Safety Standards for microwave frequencies gives definitive theory to evaluate cell phone safety.

SPEAKER: Little did IEEE Life Fellow Bob Ashley realize in 1949 to 1956 that his study and teaching of three phase theory, transformer equivalent circuits, TEM transmission lines, and power frequency measurements at the University of Kansas would combine with electromagnetic theory education in 1965 to 1967 at the University of Florida to give him a nearly optimum educational background to understand the power line epidemiology work. Living in Boulder, Colorado and teaching at the University of Colorado in Denver gave him an opportunity to observe Public Service of Colorado distribution system engineering enough to ask "what in the world do wiring configurations mean about magnetic fields?" After reading the 1979 epidemiology paper which opened the power line safety question. This background facilitates his service on IEEE Standards Coordinating Committee 28 which is developing and/or revising the IEEE/ANSI standards which apply to power lines and RF systems. Dr. Ashley has received the 1984 IEEE Centennial Medal and the IEEE Region 3 Outstanding Engineer and Outstanding Engineering Educator Awards. He holds 20 US Patents, the last five as an independent inventor of power distribution efficiency enhancements.

USF Course Announcement

This fall, two power engineering courses are being offered by the University of South Florida and will be available via FEEDS (Florida Engineering Education Delivery System, an interactive television broadcast system).

EEL 5250 Power System Analysis - Tuesday evenings from 6:00pm to 8:50pm

EEL 6936 Utility Distribution Systems - Monday evenings from 6:00pm to 8:50pm

For more information, please contact Ralph Fehr (r.fehr@ieee.org or 813-228-4448), USF Electrical Engineering department at 813-974-2659, or visit USF on the Internet at www.eng.usf.edu.

**2000 IEEE EXECUTIVE COMMITTEE
FLORIDA WEST COAST SECTION**

CHAIRMAN: Albert D. Rosenheck
Consultant (941) 395-2117
rosenheck@aol.com

VICE CHAIRMAN: Quang Tang
Seminole Electric (813) 963-0994
q.tang@ieee.org

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

TREASURER: John Conrad
Windsor Engineering, Inc. (813) 926-4004
john.conrad@ieee.org

SIGNAL EDITOR: Quang Tang
Seminole Electric (813) 963-0994
q.tang@ieee.org

AWARDS: John Twitchell, PE
Seminole Electric (813) 963-0994
j.twitchell@ieee.org

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

EDUCATION: Dr. Rudolf E. Henning, PE
University of South Florida (813) 974-4782
henning@eng.usf.edu

PACE: Mark D. McKeage, PE
Florida Power Corp. (727) 826-4393
mark.d.mckeage@fpc.com

MEMBERSHIP: John Conrad
Windsor Engineering, Inc. (813) 926-4004
john.conrad@ieee.org

STUDENT BRANCH CO-ADVISORS:
Dr. Paris Wiley, USF (813) 974-4743
wiley@eng.usf.edu
Dr. Worth Henley, USF (813) 974-2689
henley@eng.usf.edu

STUDENT BRANCH MENTOR: Jim Howard
Tampa Electric Co. (813) 630-6233
j.howard@ieee.org

STUDENT BRANCH CHAPTERS:
Daniel Faria (813)974-4776 dfaria@eng.usf.edu
Steven Smith – steven.smith@computer.org

PES/IAS CHAPTER: James Reed, PE
(813) 654-8331
jamesreed@ieee.org

MTT/AP/ED CHAPTER: Greg M. Bonaguide
Raytheon Systems Co. (727) 302-3367
g.bonaguide@ieee.org

COMP/AESS CHAPTER: Richard Beatie, PE
Consultant (813) 289-0252
r.beatie@ieee.org

SP/COMM CHAPTER: Joe K. Winner
Raytheon Systems Co. (727) 302-3162
jkwb@eci.esvs.com

Web Page <http://ewh.ieee.org/r3/floridawc>

WEB MASTER: Greg M. Bonaguide & Joey Duvall
g.bonaguide@ieee.org
j.duvall@ieee.org

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Quang Tang - Seminole Electric Cooperative, Inc.
P.O. Box 272000, Tampa, Florida 33688-2000
Voice: (813) 963-0994 Fax: (813) 264-7906
E-MAIL: q.tang@ieee.org
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Chair's Comment

by Al Rosenheck

Midsummer already and I am happy to report our Section is active as always. Having just finished putting on a most successful I&CPS Conference a few months ago, Jim Beall has once again made a successful bid for our PES branch to sponsor the 2004 I&CPS. In the meantime, Jim Howard is well underway with PES planning for the 2001 Substation Committee meeting which our PES branch will also host. And someplace along the way we found time to submit a proposal to host the 2005 IEEE Sections Congress in Tampa, though we face some tough competition for that honor. We should know the winner mid-next year.

Although our section boasts a large membership in Society Chapter memberships, it is primarily the PES Branch that is most active in sponsoring meetings, workshops and conferences, with the MTT Chapter running second. I find it puzzling that we do not see more activity particularly from the Computer and Communications Societies. We know they are amongst the largest and most active in the IEEE. In fact, we know of two Communications Society conferences scheduled to take place this year in our FWCS area. Let's turn this around and become more active in society branches? It is good for career development. Contact your section chapter chair or any of the other executive committee members if you wish to take an active role.

Students' Corner

by Daniel Faria

The fall semester started on Aug. 31st. The College of Engineering is having an Engineering Showcase between the different student organizations, where this event will help us recruit new members. The listings for the new officers are:

- President – Daniel Faria
- Vice-President – Pierfranco Issa
- Treasurer – Christina Dearstine
- Secretary – Kanix Bukkavesa
- C. Secretary – Brian Zilka
- Program Director – Jason Sanon
- EXPO Chair – Mariana Raimondo

Our first meeting for the semester is scheduled on Wednesday, September 6th (Speaker & time – TBA), and second meeting will be on September 19th at 2pm (Speaker – Richard Abrahams, Topic – Advances in WLAN Technology). IEEE is always looking for speakers, contact Jason Sanon at jsanon@helios.acomp.usf.edu if interested. The Senior Banquet has been scheduled for December 8th, where like in the Spring semester IEEE will have the honor of presenting the winners for the Poster Competition at the ceremony. IEEE has also started looking for companies to sponsor the Senior Banquet and if interested contact Daniel Faria at dfaria@eng.usf.edu.

Thanks for all of your support.



LCN 2000

The 25th Annual IEEE Conference on Local Computer Networks (LCN)



Tampa, Florida
November 8-10, 2000

Conference Web site:
<http://www.ieeelcn.org>

The IEEE LCN conference is the premier conference on leading edge and practical computer networking. LCN 2000 will have three tutorials, two keynote addresses, three panels, and 105 papers (72 full and 33 short) in six sessions and four tracks. The preliminary program in abbreviated form is shown below. The full program is available at <http://www.ieeelcn.org>.

Wednesday 11/8				
9:00 - 5:00	Tutorial #1: Security Topics and Techniques (Gary Kessler, Champlain College)			
9:00 - 12:30	Tutorial #2: Virtual Private Networks (Dr. Tim Strayer, BBN, and Dr. Ruxi Yuan, GTE Internetworking)			
12:30 - 1:30	Lunch for tutorial participants			
1:30 - 5:00	Tutorial #3: Managing Internet Quality of Service (Dr. Sanjay Jha, University of New South Wales)			
Thursday 11/9				
8:30 - 9:00	Welcome			
9:00 - 10:00	Keynote #1: IPsec: How and Why (Dr. Stephen Kent, BBN)			
10:00 - 10:30	Best paper presentation - Anonymization Services for IP Multicast (Christian Grosch, University of Hagen)			
11:00 - 12:00	Panel #1: Security (chair: Gary Kessler)			
12:00 - 1:20	Lunch (sponsored by the University of South Florida, College of Engineering)			
1:20 - 2:20	Panel #2: Home access methods			
2:40 - 4:00	Session #1 (tracks A, B, C, and D)			
1	Wireless LANS	Differentiated services 1	Network security 1	Reliability
4:30 - 5:50	Session #2 (tracks A, B, C, and D)			
	Wireless LANS	Differentiated services 2	Network security 2	Resource control
7:00	Dinner			
Friday 11/10				
8:30 - 9:30	Keynote #2: The Care and Feeding of Network Interfaces (Denton Gentry, Sun Microsystems)			
9:40 - 10:40	Panel #3: Multicast			
11:10 - 12:30	Session #3 (tracks A, B, C, and D)			
	Wireless LANs	Differentiated services	Network security	Reliability
12:30 - 1:50	Lunch			
1:50 - 3:10	Session #4 (tracks A, B, C, and D)			
	Wireless LANs	Differentiated services	Network security	Reliability
3:40 - 4:40	Panel #4: Network Security			
4:50 - 5:50	Panel #5: Network Security			
	Load balancing	Traffic characterization	High-speed switching	Routing

This is LCN's first year in the Tampa Bay area, and we hope to keep LCN here for many years. Come join us for an exciting conference. Take advantage of this "no travel" opportunity to attend a major IEEE conference in 2000 and then plan to submit a paper for LCN 2001. If you have any questions on the conference, please contact Ken Christensen (at 813 974-4761 or christen@csee.usf.edu). See the conference web site at <http://www.ieeelcn.org>.

Conference Pre-registration: The conference fees include a copy of the proceedings, four breaks, two luncheons, and the Thursday evening dinner. The pre-registration deadline is [October 31, 2000](#).

	IEEE member	Non-member	Student	
Conference	\$495	\$610	\$300	Online registration and full information is available at http://www.ieeelcn.org . Contact Ken Christensen at christen@csee.usf.edu for additional information.
Tutorial #1	\$645	\$745	\$645	
Tutorial #2	\$350	\$500	\$350	
Tutorial #3	\$350	\$500	\$350	

Hotel Pre-registration: Hotel registration is through the USF Embassy Suites (rooms are \$114 US per night). See <http://www.ieeelcn.org> or call the hotel at 1 813-977-7066. The hotel pre-registration deadline is [October 15, 2000](#).

Conference Supporters:



Florida West Coast Chapter IEEE MTT/AP/ED

September Double Header!

◆ GAME 1 ◆

"A New Type of UWB Radar System: The Noise Radar"

WHEN: Tuesday, September 12, 6:00 pm

SPEAKER: Dr. Eric K. Walton, Dept. of Electrical & Computer Engineering, Ohio State University

ABSTRACT:

Modern radar systems tend to operate with ultra wide bandwidths for radar target phenomenological analysis. Many types of radar systems are used for foliage, ground, or building penetration. Such radar must operate at frequency bands below 3 GHz to avoid attenuation. Ultra wide-band radar in these bands tend to overlap other users of the spectrum such as cellular, GPS, satellite reception, TV, and FM radio. Such radar must avoid giving or receiving interference from other users of the radio spectrum. In some applications, the radar should have a low probability of being detected by others.

The noise radar can help in these applications. A noise-radar is a very simple and low cost device that transmits a random electromagnetic signal with a very wide bandwidth (often several GHz). On receive, the signal is cross-correlated with a delayed copy of the transmitted signal to yield the target impulse response. Dr. Walton will show a number of implementations of this type of noise radar where cross correlation was used to achieve more than 70 dB of processing gain. The lecture will include a live demonstration of small hand-held noise radar. The system will be shown to penetrate below ground and through building walls to detect buried pipes, land mines, and other objects.

BIOGRAPHY:

Eric K. Walton received the B. E. E. degree from the University of Delaware (1966) and the M. S. and Ph.D. degrees from the University of Illinois (1968 and 1971).

He has been with the Ohio State University Electrical Engineering Department (in the ElectroScience Laboratory) since 1977 and is now a Senior Research Scientist. He began his research career at the University of Illinois as an assistant research professor using radio, rockets, and satellites to probe the ionosphere. At OSU, he has been involved in the study of radio and radar signal and system analysis, radar target identification, compact range development, and antenna design.

Dr. Walton was elected president of the Antenna Measurement Techniques Association for 1989, having served as vice chairman in 1987 and 1988. He has served as secretary (1979), vice chairman (1980) and chairman (1981) of the Columbus, Ohio section of the Antennas and Propagation Society of the IEEE. He was elected a Fellow of the IEEE (1994) and is a member of Tau Beta Pi, Eta Kappa Nu and Sigma Xi.

BALLPARK LOCATION (BOTH GAMES): Raytheon Systems Company, 1501 72nd Street N., St. Petersburg

RAINDATE: No raindate – they're indoors! **Gill Robb Conference Room**

TICKETS: Best deal in town (free!) – Just leave name & country of citizenship with Greg Bonaguide at (727) 302-3367. Email: g.bonaguide@ieee.org. Bring a guest; non-members welcome! (Peanuts and Crackerjacks will be provided.)

DIRECTIONS: From Tampa, take I-75 South to I-275 south across Tampa Bay to Exit 12 (22nd Ave N.). From Sarasota, take I-75 North to I-275 north over the Sunshine Skyway Bridge to Exit 12 (22nd Ave N.). Turn west on 22nd Ave. past Tyrone Mall to 72nd Street N. Turn left at the traffic light to the Engineering building. Park in the lot farthest south of complex. The meeting will be held in the GILL ROBB WILSON CONFERENCE ROOM - 2ND FLOOR - ENGINEERING

◆ GAME 2 ◆

“Wireless LAN’s - Present and Future”

WHEN: Tuesday, September 19, 6:00 pm

SPEAKER: Richard Abrahams, Intersil Corporation (formerly Harris Semiconductor), Palm Bay, Florida

ABSTRACT:

Just what is the “present state” of WLAN technology, and what are the technical forces shaping wireless internet connectivity? Richard explores these questions, and discusses such topics as:

- Multipath and its Mitigation techniques
- New 5 GHz UNII WLAN band
- OFDM modulation

Please join us for this informative and timely presentation.

BIOGRAPHY:

Richard L. Abrahams is a Senior Principal Engineer in the Wireless Applications group where he works with various Intersil customers optimizing their 2.4 GHz PRISM™ products. He received the B.E.E. and M.E.E. degrees from Rensselaer Polytechnic Institute in 1961 and 1962 respectively. Richard has formerly held Sr. RF Engineering positions at JTECH, Inc., Chief Engineering positions at Radio Systems, Inc. and Sonar Radio Corp., and Project Engineering positions at Harris/RF Communications and Sunair Electronics. His fields of interest include Low Noise Receivers, Phase Lock Loops, and medium power digital and analog transmitters. He also specializes in both domestic and international Regulatory Compliance. Abrahams is a Senior member of the IEEE and a member of the Radio Club of America. He is also an avid Jazz keyboard player and performs in local Night Clubs and Country Clubs in the Ft. Lauderdale and Melbourne areas.

September PE/IAS Meeting

Hydrogen Power, the Fuel that will power the World

Speaker: Dr. Clovis Linkous,

When: Wednesday, September 20th at 11:30am

Where: Tampa Electric Company - TECO Hall
702 N. Franklin St. (Downtown Tampa)

Reservation: Paul Leal at (813) 630-6334 or email ST053@tecoenergy.com

Cost: \$10 for members, \$15 for non-members, \$5 for student members
Lunch will be provided - Lasagna

Ever thought that you may have large swimming poles supplying your home with electricity? Believe it or not, algae may be a source of fuel in the next 20-30 years. Just as well, Hydrogen may be fuel of choice that may replace "gasoline" in the near time to come. Attend this month's meeting with Dr. Clovis Linkous, senior research scientist at the Florida Solar.

The US contributes many resources through the Department of Energy to develop new sources of fuel. These few offices are scattered throughout the United States. Unbelievably, one of these offices is located about an hour from here. Be fortunate to hear what one of the world's prominent research Scientist says about hydrogen and the future that it may play in the next few years, as well as revolutionary concepts that may restructure the world as we know it.

Brain Teaser Challenge Column

by Butch Shadwell

August BTC Solution

At the time I am writing this, I have received only two correct responses to last month's BTC. The solution is not too complicated, but it depends on a couple of key points. First the optical receiver must have a dynamic range that extends beyond the sum of the background noise plus the range finder signal, and secondly there must not be another light source that coincidentally produces energy with the same special characteristics as the range finder beam.

As the two fellows referenced above suggested, the range finder beam must be modulated in some fashion that makes the return energy distinguishable from the other light sources that illuminate the receiver. This modulation scheme is usually very simple. The emitted beam is simply gated at a very high frequency, over 10kHz, which gives it power at a frequency well beyond most other light sources modulations. Various filtering techniques are employed to detect this higher frequency energy. Basically the sun is a DC light source and most other light sources are at 120Hz or less.

September BTC

Darby O'Gill Shadwell, passed over more than 20 years ago. The wake was quite an affair. Many of his old friends in attendance spoke of how much fun it used to be to cheat him at cards. The only down side to those card games, that anyone could recall, was having to listen to his ridiculous stories about himself and the "little people". Of course everyone assumed his rants were pure fabrication and that he must have had some delusions about leprechauns. What they didn't know was that Darby had been sold to a band of gypsies, of extremely small stature, as an infant, in order for his parents to afford health insurance for the rest of the brood. Unfortunately, his sacrifice was for naught, as the co-payments proved to be too much of a burden. Darby's parents were quite socially advanced for that point in history, having already decided that actually working to support one's family, was passe. Even so, the family later did quite well as the baby market improved and they found they could make a seemingly endless supply.

Before he died, Darby had been trying for years to build a better shoeshine machine. In order for this device to measure the degree of shine, a light beam (non-coherent) was reflected from a flat surface on top of the toe, then passed through a polarizing filter. The light passing through this filter was measured for intensity as the filter was rotated from a horizontal plane (parallel to the shoe's reflective surface) to a vertical one. The difference in the two readings was an index as to the shoe's quality of shine, the bigger the difference the more perfect the shine. The question is, could this technique have worked, and if so, which position of the filter would produce the higher output on a very shiny shoe, horizontal or vertical?

Questions or comments to the Brain Teaser Challenge, please contact Butch Shadwell at 904-223-4465 (v), 904-223-4510 (fax), b.shadwell@ieee.org (email), 3308 Queen Palm Dr., Jacksonville, FL 32250-2328. (<http://www.ccse.net/~butchs/>)

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The International Council on Systems Engineering
CENTRAL FLORIDA, ORLANDO, AND SPACE COAST CHAPTERS

present

OBJECT ORIENTED SYSTEMS ENGINEERING METHOD

A One Day Tutorial, Saturday, November 4, 2000

Instructor: Dr. Abe Meilich

If you are interested in:

- ***Integration of system engineering and software modeling techniques***
- ***How object oriented techniques can serve the system engineer***
- ***Using UML to model system level requirements***

Then this tutorial is for you!

The instructor will introduce an Object Oriented Systems Engineering Method (OOSEM) that bridges the gap between systems methods and object oriented software engineering. Based upon the widely known Unified Modeling Language (UML), this method brings object oriented modeling to the systems engineering community, and adapts it for modeling systems-level requirements and design. A major goal of OOSEM is ease of integration with object oriented methods for software engineering. Models developed by this method simultaneously serve the needs of systems engineers and facilitate the systems-to-software transition. This tutorial will introduce the student to the OOSEM method by describing the basic object oriented concepts, system level activities, use of UML and how they integrate with object oriented software engineering activities. It will cover ways UML can be adapted to address systems-level concerns. This is an intermediate level course. It assumes some rudimentary knowledge of Object Oriented Analysis (although there will be a basic review of OOA concepts) and Systems Engineering activities.

Topics covered include:

- **Systems Engineering Overview**
- **An overview of UML and object oriented concepts**
- **The Object-Oriented Systems Engineering Method**
- **An in-depth overview of OOSEM activities and work products**
- **Tool support for OOSEM**

Time: Registration begins at 8:30 a.m., workshop is 9:00 a.m. until 6:00 p.m.

Place: Orlando, Florida (detailed location information not yet available)

Cost: Space is limited. Be sure to enroll early. **Early registration deadline is October 20, 2000.**

	Early Registration	Late Registration
INCOSE Member:	\$50	\$60
Non-Member:	\$60	\$75
Student (full time)	\$25	\$40

(Attendees joining INCOSE and one of the sponsoring Chapters as first-time new members at the Tutorial will receive half off their first annual membership fee.)

For additional workshop information, phone Ben Berauer at 727-302-7693 or email bfb@eci.esys.com.

September 2000 Calendar of Events

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					1	2
3	4 <i>Labor Day</i>	5 <i>EXCOM Meeting TECO Data Center 6:00 PM Guests Welcome</i>	6	7	8 <i>Material Due For Next Month's SIGNAL</i>	9
10	11	12 <i>MTT/AP/ED Game 1 – “The Noise Radar” At Raytheon 6:00 PM</i>	13	14	15	16
17	18	19 <i>MTT/AP/ED Game 2 – “Wire-Less LAN’s” At Raytheon 6:00 PM</i>	20 <i>PE/IAS Meeting at TECO Plaza Downtown Tampa, 11:30am</i>	21 <i>Joint Section & Life Members Chapter Meeting Sarasota, Florida 12:00 PM</i>	22	23
24	25	26	27	28	29	30

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