



THE SUNCOAST SIGNAL

THE INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS, INC.

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

Volume 44 - No. 6

June 2001

Fort Myers June Joint Section & Life Member Luncheon Meeting

Date/Time: Tuesday, June 12, 2001 at noon

Location: The Helm Club Restaurant at The Landings Yacht Golf & Tennis Club on McGregor Blvd. in South Fort Myers

Subject: 1 - Organizational Meeting For Future Ft. Myers IEEE Activities
2 - An Update on IEEE Support of Pre-college Education

RSVP: Please reserve by Friday, June 8 with Al Rosenheck at rosenheck@aol.com or (941) 395-2117

Cost: Members \$10, non-members \$15 for an all inclusive luncheon buffet

Abstract:

You asked for it and now here it is, a Fort Myers IEEE meeting is finally becoming a reality. The meeting will cover two subjects. The first deals with our future organization and activities. So come early to meet and network with your local Collier, Lee, Charlotte and Sarasota County IEEE colleagues. Be prepared to introduce yourself with a brief description of your professional career and current interests. We will discuss plans for future meetings in this area.

The second part of the meeting will be a presentation by Douglas Gorham Ed.D., describing the IEEE pre-college education strategy and the role sections can play in support of teacher in-service education. Doug joined the IEEE last year as the IEEE Pre-college Education Manager. Prior to that he served as a high school principal for 12 years. He earned his Ed. D. from the University of Illinois Urbana-Champaign and an MS degree from Northern Illinois University.

Directions from Interstate 75:

Exit I-75 at Exit 21 (SW Florida International Airport/Daniels Parkway). Go West on Daniels Parkway to US 41 in South Fort Myers. Cross US 41 and continue driving West on Cypress Lake Drive then take Cypress Lake Drive to McGregor Blvd. (7-11 on left). Turn right at McGregor and go to the first traffic light (Camelot Drive). Turn left into the entrance to The Landings. Tell the Guard you are attending the IEEE Luncheon Meeting at The Helm Club Restaurant.

Directions from US 41 in South Fort Myers:

Take US 41 to Cypress Lake Drive (Eckerd's at NW corner and Applebee's on SW corner). Go West on Cypress Lake Drive to McGregor Blvd. Turn right at McGregor and go to the first traffic light (Camelot Drive). Turn left into the entrance to The Landings. Tell the Guard you are attending the IEEE Luncheon Meeting at The Helm Club Restaurant.

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All material for THE SUNCOAST SIGNAL is due by the Friday following the 1st Thursday of the month preceding the issue month. Address all correspondence to:

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Chair's Comment

By Quang Tang

For the first time, the Section will hold a joint meeting with Life Members Chapter in Fort Myers area. Our goal at this meeting is to bring all members together from this area to discuss future IEEE activities there and networking. I hope all of you could join us.

The Substation Committee was successfully held last month at the Wyndham Harbour Island Hotel. Check out the full report on page 7 of this issue.

Our In-Service program has made national. If you missed the article in "The Institute" May 2001 issue, check it out at <http://www.institute.ieee.org/INST/may2001/fflorida.html>. Thanks to Doug Gorham for his tremendous work leading this program.

Being this month, Art Nordlinger and Ghaff Khazami will join the Section's Executive Committee. Art will chair Power Engineering Society/Industrial Application Society (PES/IAS) Chapter. Ghaff will join Art as the Vice Chair. Congratulations!

If you missed the RTO meeting back in February this year, Mr. John Boucher of Regional Transmission Organizations Business Area will be back to provide the second half of his presentation in July. Look for details in July Signal and reserve early since seating at this meeting is limited.

ATTENTION Retired Engineers!

Tired of golf, golf and more golf?
Can't read another magazine?
Want to reenergize your mind!

ETCO, Inc. Research & Development
will be hosting an informal monthly Engineers'
Discussion over coffee & danish at our facility.

Come share your experience at our newly established lab.
This is no gimmick or come on.
Just an old fashion "pickle barrel" chat.

Every 2nd Wednesday of the month from 9am - 11am
Next event will be on **June 13, 2001**
Future Dates: 7/11 and 8/8
You can find us at

6300 Tower Lane, Suite 12
Sarasota, FL
(941) 379-8988
Ask for Brian Stumm

IEEE Signal Processing/Communications Society Chapter Meeting **Frequency Estimation Using Importance Sampling**

Professor Steven Kay, University of Rhode Island



Date/Time: Friday, June 29, 2001 at 12:00 PM

Location: Gill Robb Conference Room, Raytheon Systems Company
1501 72nd Street North, St. Petersburg, FL, 33710

Lunch: IEEE Signal Processing/Communications Society will provide lunch if you RSVP at least 48 hours in advance

Abstract: Maximum likelihood estimation (MLE) of the frequencies of complex sinusoids in white Gaussian noise is a difficult nonlinear optimization problem. For more than a few sinusoids an exhaustive search of the likelihood function for the global maximum is computationally impossible. The importance sampling approach allows the likelihood function to be sampled only at the important points or the ones that are expected to exhibit large values. As a result, the importance sampling implementation of the MLE is a practical approach to optimal frequency estimation. Computer simulation examples are given to demonstrate that the proposed method produces as good performance as an exhaustive search MLE but with much less computation. The general approach can also be applied to other important signal processing problems such as direction of arrival estimation, time delay estimation, and estimation of chirp signal parameters.

Biography: Steven Kay was born in Newark, NJ, on April 5, 1951. He received the B.E. degree from Stevens Institute of Technology, Hoboken, NJ in 1972, the M.S. degree from Columbia University, New York, NY, in 1973, and the Ph.D. degree from Georgia Institute of Technology, Atlanta, GA, in 1980, all in electrical engineering.

From 1972 to 1975, he was with Bell Laboratories, Holmdel, NJ, where he was involved with transmission planning for speech communications and simulation and subjective testing of speech processing algorithms. From 1975 to 1977, he attended Georgia Institute of Technology to study communication theory and digital signal processing. From 1977 to 1980, he was with the Submarine Signal Division, Portsmouth, RI, where he engaged in research on autoregressive spectral estimation and the design of sonar systems. He is presently Professor of Electrical Engineering at the University of Rhode Island, Kingston, and a consultant to industry and the Navy. He has written numerous papers and is a contributor to several edited books. He is the author of the textbooks *Modern Spectral Estimation* (Prentice-Hall, 1988), *Fundamentals of Statistical Signal Processing, Vol. I: Estimation Theory* (Prentice-Hall, 1993), and *Fundamentals of Statistical Signal Processing, Vol. II: Detection Theory* (Prentice-Hall, 1998). His current interests are spectrum analysis, detection and estimation theory, and statistical signal processing.

Dr. Kay is a Fellow of the IEEE, and a member of Tau Beta Pi and Sigma Xi. He has served on the IEEE Acoustics, Speech, and Signal Processing Committee on Spectral Estimation and Modeling.

Reservations: Please notify Bror Peterson (727) 302-4710 at Raytheon Systems Company at least 48 hours in advance if you are attending. You must specify if you are a US citizen. If not, special approval will need to be obtained.
[Bror W Peterson@raytheon.com](mailto:Bror_W_Peterson@raytheon.com).

Directions: From Tampa, take I-275 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 (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 the complex. Gill Robb Conference Room – 2ND Floor – Engineering Building.

Florida West Coast Section

IEEE MTT/AP/ED June Meeting

Summer Tutorial Series: "Microwave Ferrite Technology"

When: Thursday, June 14, 2001 6:00 pm

Where: Xetron Corporation, Palm Harbor

Speaker: Douglas Linkhart
TRAK Microwave, Tampa, FL

ABSTRACT:

Microwave ferrite technology has found many applications in microwave systems since its initial development some 50 years ago. Despite the maturity of this technology, challenges remain. This seminar will serve as an introduction to ferrimagnetic materials and nonreciprocal microwave ferrite devices. Topics to be introduced include: classes of microwave ferrites, manufacturing of ferrites, ferrimagnetic resonance, tensor permeability, microwave propagation in ferrites, applications of microwave ferrite devices, and the design of junction circulators.

BIOGRAPHY:

Douglas Linkhart has held engineering and technical management positions in the microwave industry for more than 20 years. In New Jersey, he worked for Ferrite Engineering Labs, Microwave Control Company, and Triangle Microwave. After working for MPD, Inc. in Owensboro, Kentucky for three years, he joined TRAK Microwave in Tampa in 1991, where he is presently employed as a Senior Engineer. In Tampa, he has also worked for Diversitronix Wireless and Group Technologies. Most of his career has been devoted to the design and manufacturing of microwave ferrite devices.

Mr. Linkhart has earned several AS degrees, a BS in Computer Science from Thomas Edison State College in New Jersey, and an MBA from the University of South Florida.

He is the author of the book, "Microwave Circulator Design" (Artech House, 1989), several technical papers, and some computer software. He is a member of the IEEE and the IEEE/MTTS Transactions Editorial Board.

MEETING LOCATION:

Xetron Corporation, 2570 Coral Landings Blvd., Suite 301, Palm Harbor, FL.

RESERVATION:

Leave name & country of citizenship with Ed Grimes at (727) 784-3998 x158. e-mail: edg@xetron.com *Bring a guest; non-members welcome!*

DIRECTIONS:

From Tampa: Take Hillsborough Ave. (Tampa Rd.) west to US19, turn right (North) on US19 and proceed ~3 blocks to Coral Landings Blvd. Xetron is on the 3rd floor of the Baird/ building directly behind the Palm Harbor Ale House and Suntrust Bank.

From St. Petersburg: Take US19 North to Coral Landings Blvd. (~3 blocks north of Tampa Rd.) Xetron is on the 3rd floor of the Baird/ building directly behind the Palm Harbor Ale House and Suntrust Bank.

Art Nordlinger Appointed PES/IAS Chapter Chair



Art Nordlinger has been appointed by the Section's Executive Committee to chair the PES/IAS Chapter. Art is a senior member of IEEE and a member of the Power Engineering Society. He has been an IEEE member for twenty-two years and served as Technical Tours Chair for the

1998 Winter Power Meeting in Tampa. Paul Leal, who was Chapter Chair until recently, has stepped down due to family obligations. "The section greatly appreciates Paul's work as PES/IAS Chapter chair," said Jim Howard, Past PES Chapter Chair. "We're looking forward to the continued success of the Chapter under Art's leadership."

Art, who is a registered Professional Engineer, heads up Nordlinger Consulting which specializes in federal and state utility regulation, resource planning, and rate analysis. He has worked in utility, industrial and military power systems during his career. The University of South Florida appointed Art to an adjunct professorship where he has taught graduate level courses in Electric Utility Energy Management Systems and Advanced Power System Analysis.

"I very much appreciate this opportunity to serve as chair of the PES/IAS Chapter," Art told the Ex Comm after his appointment. Joining with Art will be Ghaff Khazami. Ghaff is appointed as the Vice Chair. The position of Chapter Secretary/Treasurer is currently open and we are looking for one volunteer to fill these position and help to continue to provide quality programs and seminars for the members.

We're looking for ideas for new and innovative programs. I would also note that most of the recent officers of the PES/IAS Chapter have come from the power industry, as I have. This is an appeal to the Industrial Applications Society members to step forward and add your unique perspective and expertise to the Chapter organization. This will allow us to broaden our perspective even farther in providing technical programs and other opportunities to the membership. A commitment of just a few hours per month is all that is required. If you are interested, please contact Art at nordlinger@hotmail.com or you may call him at 727-430-1912.

USF – EE Department Wireless and Microwave Program Mini-Circuits Graduate Student Research Fellowship Award Winner

The Wireless and Microwave Program at the University of South Florida is pleased to announce that **Brad Rametta** was awarded a Mini-Circuits Graduate Student Research Fellowship at the recent IEEE Senior Night Banquet held on April 27. Brad is enrolled in the master's degree program in electrical engineering, and is performing research in the area of microwave metrology. Additional awardees were Catherine Boosales and Jason Naylor, who received WAMI Graduate Student Tuition Support stipends. These tuition stipends are made possible by prior cash gifts made to the WAMI Program by RF Micro Devices, Motorola, Raytheon, Harris, Honeywell and Xetron companies. Pete Kirby and Balaji Lakshminarayanan were recipients of Mini-Circuits Graduate Student Research Fellowships in December 2000.

The Wireless and Microwave program currently offers industry-sponsored fellowships from Mini-Circuits, TDK Electronics (Ireland) and JDS Uniphase. Details can be found at <http://ee.eng.usf.edu/WAMI>.

For further information contact:

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**University of
South Florida**

USF

College of Engineering

Letter from New Student Branch Chapter President



Hello all,

I'm sure many of you out there are quite curious as to the events that will be hosted by the IEEE Student Branch this term. I would first like to start off by saying that the student board that has been inducted in for this year is highly motivated as well as intelligent and are looking to push this chapter to all new heights. I would like to give you all a taste as to what is in store for IEEE and as well as the local community.

As President of the student chapter, I have appointed a new officer position. The title of this position shall be IEEE X-treme Team Leader. This officer shall be responsible for motivating all student members to participate in activities as tutoring at local schools, helping the community where needed, such as getting involved with Shriner's Hospital, Salvation Army, etc. I feel that it is our duty as community representatives to help out where needed as well as get the IEEE name out.

Many of you might not have been aware of the success of last semester's IEEE T-shirt sales. We sold nearly 200 shirts. The shirt was designed solely by the IEEE Student Branch. The shirt became such a success that Intersil decided to purchase 50 t-shirts. Look for another creative design this upcoming fall semester.

Also, The IEEE Student Branch web page is being revamped right now. The goal is to have this page more active as to involve IEEE student members checking for new events. Also for the purchase of lab kits, T-shirts, etc.

As usual expect an excellent Senior Banquet in the Fall semester. We are thinking about many new ideas. I can't reveal them all, as this would ruin the surprise for all sponsoring companies.

The student chapter will also be hosting doughnuts every Monday as to encourage Faculty, Staff, and Students to mingle. The event will be sponsored by Motorola.

There are many other prototype ideas that this incredible student board are conjuring up right at this moment. I encourage all IEEE members to put on their creative hats and send the X-treme Team Leader any ideas or community related activities that you think would be appropriate for IEEE.

I would like to congratulate all new elected officers:

Vice President:	Clemente Toro
Treasurer:	Amy Yen
Secretary:	Ruben Gomez
X-treme Team Leader:	Stephan Curry
Historian:	Lindsay Lattimore
Web Master:	Carlo Dionson
Corr. Secretary:	John Daniel
Expo Chair:	Pam Collins

Sincerely,
Anthony Webster
IEEE Student Branch President
apwebste@eng.usf.edu



New Student Officers - front row, left to right - John Daniel (Program Director), Clemente Toro Jr.(Vice-President), Lindsay Lattimore (Historian), Steve Curry(Xtream Team Leader), Carlo Dionson (Web Master), back row, left to right - Ruben Gomez Jr.(Secretary), Anthony Webster (President) Not Shown: Amy Yen (Treasurer)

IEEE POWER ENGINEERING SOCIETY / SUBSTATIONS COMMITTEE



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The IEEE PES Substations Committee held their annual meeting in Tampa, Florida on May 6-9, 2001 at the Wyndham Harbour Island Hotel. The meeting began on Sunday evening, May 6, with a reception in the Terrace area of the hotel. The general meeting was held on Monday morning, with a status report by Chair John McDonald, an EPRI project report by Ben Damsky, and a presentation on the IEEE Standards Association (SA) balloting process by Steve Kahofer, Manager of Technical Programs at the IEEE SA Balloting Center. The Awards Luncheon followed the general meeting. The guest speaker was Greg Ramon, Director of Transmission Policy and Analysis for Tampa Electric Company. Ken Cooley, from Tampa Electric Company, received a Certificate of Appreciation for chairing the host committee for the meeting. Ken recognized other members of his host committee: Jim Howard, Vice Chair, from Tampa Electric Company; John Conrad, Secretary & Treasurer, from Windsor Engineering Inc., Richard Beatie, Registration, from Scientel LLC; and John Twitchell, Sponsorship, from Seminole Electric Cooperative, Inc.

In addition to the Working Group, Task Force and Subcommittee meetings, there was a technical tour, an evening social event and companion activities. The technical tour included visiting two Tampa Electric Company substations to view an example of a recent large (43.2 MVAR) fuse-less 69kV capacitor bank installation and a retrofitted distribution substation integration installation. The Tuesday evening social event was a dinner and dance cruise on the authentic paddlewheel boat, the Starlite Princess. The companion activities showcased the Tampa Bay region.

The officers of the Substations Committee are John McDonald, KEMA Consulting, Chair; A.P. Sakis Meliopoulos, Georgia Institute of Technology, Vice Chair; and Hanna Abdallah, Arizona Public Service Company, Secretary. The officers speak for the entire committee in thanking the host committee and the support of their companies for their dedication and efforts in planning and carrying out a very successful meeting. The members of the host committee and the Florida West Coast Section of the IEEE has extensive experience in meeting planning and implementation, for much larger meetings than this one. The Substations Committee was fortunate to have a host committee with this level of experience. Thanks to the host committee, their companies, and to the Florida West Coast Section for a very successful meeting!

ELECTRICAL ENGINEER WANTED

Pelican Engineering needs an electrical engineer to design building power systems. AutoCAD experience is necessary and professional registration is desirable. Salary will be dependent upon qualifications and experience.

Pelican Engineering Consultants, Inc.
5811 Pelican Bay Blvd., Suite 301
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Phone (941) 597-7544
Fax (941) 597-6363
Email pelicanenr@prodigy.net

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(727) 578-2500

Brain Teaser Challenge Column

By Butch Shadwell

May BTC Solution

I hope some of you recognized the reference to Bullwinkle T. Moose's alma mater in my last column. Not that Bullwinkle is known for his electronics expertise, but he is my favorite actor of all time. Fortunately, some of my readers came to our students rescue and correctly identified "aliasing" as the offending phenomenon. As you recall the boys were using a sample rate on their A/D converter that was only twice the highest frequency in the band of interest. Also, they neglected to use an anti-aliasing filter before the input to the converter.

Maybe I should step back a little further. Aliasing is the phenomenon caused by signals entering an analog to digital converter at a frequency higher than one half the sample rate. This results in information being added to the output data at frequencies related to the difference between the sample rate and the unwanted input signal. The solution to this problem is to use a low pass filter at the input to the A/D that will attenuate frequencies outside the band of interest, to a level below the resolution of the converter. Also, if one over samples (i.e. samples at many times the highest frequency of interest), then even better quality data can be achieved with digital filtering of the output of the conversion.

June BTC

On a recent trip to the Bahamas, I had a strange thing happen. One of favorite dishes is conch fritters, and they make great conch fritters in the islands. One day as I was enjoying some fritters at a restaurant, the bus boy stops at my table and asks, "You know anything about linear power supplies?" As you can imagine, I was a little surprised by this fellow's question. Especially since my water glass had been empty for at least five minutes. After checking to see if I had inadvertently transferred my plastic pocket protector to my vacation shirt, I asked why he would think that I might be knowledgeable in that area. He answered that he had had a vision during a semi-conscious, chemically induced, trance, where he saw me holding a soldering iron standing in a field of blackened, over-heated 2 watt resistors. As I imagined the smell of that scene, my appetite for fritters frittered away.

So I told the fellow, that as luck would have it I did know something about linear power supply design, and then explained my consulting rate schedule. Since Morris asked so nicely I decided to try to help, gratis. He was using a 7805 regulator operating from a 24 volt supply. The maximum continuous load current was 500 mA, and in this installation the 7805 could not dissipate more than 5 watts safely. Can you suggest a circuit configuration that will minimize the dissipation of the 7805? Hint: Let's assume the dropout voltage of the 7805 is 2 volts.

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.se.mediaone.net/~butchs/>

Still A Hot Commodity

(Washington Post, 4 May 2001)

Soon-to-be graduates of Virginia Polytechnic Institute's engineering programs are finding the job market welcoming, despite highly publicized layoffs and economic hard times. School officials boast that this year's graduates, while receiving fewer offers than the year before, still have an average of three or four employment options. Of the graduates of the class of 2000, 66 percent have already found jobs, while another 16 percent are attending graduate school. Those that are taking jobs are still seeing initial pay offerings go up—civil and electrical engineers' salaries have grown 10 percent during the year, and computer engineers top the market with average paychecks of \$53,818, according to the National Association of Colleges and Employers.

CAREER OPPORTUNITIES

Beckwith Electric Co., Inc., located in Largo, Florida, is a leading manufacturer of innovative high quality products, technical services and solutions for the electric utility industry. We are seeking qualified candidates for the following positions.

COMMUNICATIONS ENGINEER

Electrical engineer familiar with wireless digital technology, cellular phones/pagers to design and implement digital data communications. Should have knowledge of modem technology, and be able to develop proprietary protocols for use with internally developed products. Implement standard protocols and be able to code and embed standard data transmission techniques including error checking. BSEE/BSCS and 5 years experience required. Must be familiar with digital data transmission for energy management systems and radio control of a wide spectrum of applications. Experience with IEEE802.11 wireless protocols a plus.

DSP SOFTWARE ENGINEER

Software engineers with experience in the areas of DSP, embedded controllers, assembly, and C software development. Exposure to hardware development is desirable and experience with communications protocols such as MODBUS, DNP, UCA, a plus. Four-year degree required (EE or CS preferred) and 2-5 years' DSP experience.

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June 2001 Calendar of Events

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