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May 1999

SUNCOAST

SIGNAL

THE INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS, INC.

May Section & Computer/AESS Joint Meeting Preparing the Electric Power Systems of North America for Transition to the Year 2000

DATE/TIME: Wednesday, May 19, 1999 at 6:00 PM

LOCATION: Spaghetti Warehouse at 6:00 in Ybor City for Dinner
TECO Data Center at 7:30 for Meeting
1898 Nick Nuccio Parkway, Ybor City

RESERVATIONS: Not Required. Please call Richard Beatie at (813)254-1208 for more information.

SPEAKER: Mr. Donnie Miller, Florida Power Corporation

ABSTRACT:

In a letter to the North American Electric Reliability Council (NERC) in May 1998 the Department of Energy requested an assessment of the electric industry's progress in addressing the Y2K issue and assurance by July 1999 that the electric systems are ready to operate into the Year 2000. This presentation provides a status report of the readiness progress of the electric industry as reported to DOE as of the first quarter of 1999.

BIOGRAPHY:

Donnie Miller is currently the Year 2000 Project Manager for the Energy Delivery Business Unit at Florida Power Corporation in St. Petersburg, Florida and is the NERC/FRCC Regional Coordinator for the NERC Y2K Electric System Readiness Assessment Project. Donnie holds a BEE from Auburn University and is a 28-year IEEE/PES member and a past Chair of the FWCS/PES.

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Chair's Comment

by Al Rosenheck

In March, the Lexington Section and Student Branch at the University of Kentucky hosted SoutheastCon '99. A well organized conference with approximately 400 registrations, it was actually three conferences in one;

- Region 3 committee meetings;
- Student papers and associated hardware and software competitions;
- Professional Activities meetings.

As usual, there was fierce competition for the hardware robot car prize. Lots of last minute tweaking and adjustments resulted in a win for the University of West Florida, with the Citadel claiming a close second. Not bad considering this is the first time out for the Citadel. And let's not forget the student technical papers as their consistent high quality made the award selection a difficult job.

In the region meetings we were briefed on potential changes coming out of IEEE headquarters in the areas of use and look of the IEEE logo, a streamlining initiative affecting the role of volunteers, policies and authority of ad hoc meetings, and a new IEEE financial model, and budget reorganization. As might be expected, there were lively discussions about these controversial initiatives and I am sure we will be hearing more in the future about these issues!

Our FWCS Executive Committee was well represented at the conference as many of our members are also officers of the Florida Council and Region. Jim Howard, Jim Beall, Mark McKeage, Joey Duvall, John Twitchell and I participated. If you would like to hear more details of the conference, any of us would be happy to brief you.

In April Southcon '99 is scheduled to take place in Atlanta, Georgia, although as I write this article, it has not yet happened. Our Florida Council is a major sponsor of this technology event and we are sure it will be a success. It is a great opportunity to hear the latest in technical papers and see what vendors have to offer.

The Suncoast Signal is on line....

If you haven't seen it, check it out! You can view The Suncoast Signal on our own web site before receiving your copy in the mail. Visit Florida West Coast Section home page at <http://ewh.ieee.org/r3/floridawc> and send any comments to our Web Master Joey Duvall at j.duvall@ieee.org.

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FLORIDA WEST COAST

SECTIONCHAIRMAN: Albert D. Rosenheck
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VICE CHAIRMAN: Quang Tang
Seminole Electric Cooperative (813) 963-0994

SECRETARY: Jules Joslow
ElectroMark, Inc. (800) 274-2383

TREASURER: Betty Fritz
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Seminole Electric Cooperative (813) 963-0994

AWARDS: John Twitchell, PE
Seminole Electric Cooperative (813) 963-0994

BYLAWS: Richard Beatie, PE
Consultant (813) 289-0252

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SIGNAL PROC. CHAPTER: Tom Weller
University of South Florida (813)974-3940

Web Page <<http://ewh.ieee.org/r3/floridawc>
WEB MASTER: Joey Duvall

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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: **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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May MTT/AP/ED Meeting

New Concepts in RF Packaging and System Integration

DATE/TIME: Tuesday, May 11, 1999 6:00 p.m.

LOCATION: Raytheon Systems Company St. Petersburg, 1501 72nd Street North,
St. Petersburg (Gill Robb Conference Room)

RESERVATIONS: Leave name & country of citizenship with Greg Bonaguide at (727) 302-3367.
Join us for dinner after the meeting. Bring a guest; non-members welcome!

SPEAKER: Dr. Madhu S. Gupta
Florida State University, Department of Electrical Engineering

ABSTRACT:

This talk will briefly survey the trends in electronic packaging and system integration technologies at RF and microwave frequencies, emphasizing their desired goals, current state-of-the-art, outstanding problems, major directions being pursued, and the near-term prospects. Thereafter, one major technology will be taken up for detailed discussion. This is the Flip-Chip technology, applied to GaAs MMICs, and its use in Microwave Multi-Chip Modules. Following a broad overview of the flip-chip technology, spanning from processing steps to performance results, attention will be focussed on the new challenges this technology poses for the RF and microwave engineer. There is a need and opportunity for the development of new components, models, CAD and EM simulation software, design rules, and trade-offs that are appropriate for this technology.

BIOGRAPHY:

Dr. Gupta received the Ph.D. degree in Electrical Engineering from the University of Michigan in 1972. After serving for 15 years in academia, as a faculty member at MIT and University of Illinois, and as a visiting faculty member at University of California, Santa Barbara, he joined Hughes Aircraft Company in 1987, and has worked at Hughes Research Laboratories, Hughes Microwave Products Division, Hughes Microelectronic Circuits Division, and currently at Hughes Radar and Communication Systems. Presently he is a Professor of Electrical Engineering at Florida State University, having served as the Chairman of Electrical Engineering Department there from 1995 to 1998. He has published over 100 writings, including journal articles, conference and invited papers, patents, and book chapters, and has edited three books published by IEEE Press. He is a fellow of the IEEE, and has served on the Speakers' Bureau of the IEEE MTT Society.

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 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. GILL ROBB WILSON CONFERENCE ROOM - 2ND FLOOR - ENGINEERING BLDG.

Wireless Microwave Technology: An Industry/Government/Academic Forum.... A Great Success

One only needs to visit Tampa Airport to see the impact of wireless technology. To help engineers become more familiar with growth in this field, Professors Henning, Weller, Gordon and Dunleavy of USF 's Wireless and Microwave Instruction (WAMI) program, organized a local Wireless Forum on Saturday February 20 that was a huge success. Co-sponsored by the Florida West Coast Chapter of IEEE MTT/AP/ED Societies, this forum brought together a broad spectrum of industry, government and academic shapers and shakers from around the nation, to discuss fourth generation wireless technology.

The opening presentation was made by Dr. Magdy Iskander from the National Science Foundation and its newly created wireless initiative. Within this initiative, fourth generation wireless goals were presented that stressed the needs for a "multidisciplinary approach" that couples an integrative technology to achieve an adaptive wireless communications system.

Dr. Barry Perlman from U.S. Army Ft. Monmouth Laboratories presented the DOD new commercialization plan for military communication systems. Under this philosophy, custom designed communication systems are out, and reliance on commercially available hardware will be employed by our troops. Strategic application of commercial assets such as satellites, repeaters, cell stations will be employed as needed for national security. Future wireless networks called "smart dust" will provide surveillance and security on the 21st century battlefield. Another emerging device technology is "MEMS" or microelectromechanical systems. These devices, based on micromachined structures in silicon offer improved RF performance in such components as switches and filters within substantially smaller sizes.

Industrial speakers Ray Pengelly and Leland Langston representatives from Raytheon Commercial Electronics Andover, MA. and Raytheon Systems, Dallas, TX, presented the current status and challenges facing future wireless systems below and above 6 GHz respectively. The former talk covered such applications as mobile 'phones, wireless LAN, GPS, small boat radars and satellite communication systems while the latter stressed Local Multipoint Distribution Systems (LMDS), DSS, Teledesic and the Halo localized communications project.

George Morgan from Virginia Technology presented the present development and difficulties implementing LMDS, "Local Multiple Distribution System". Virginia Tech owns four FCC licenses to implement this new technology between the local user and fiber optical cables that offers 1150 MHz of bandwidth.

Craig Sapashe and Joel Dunsmore both from HP, and Charlie Wooding of ATN, as well as Gailon Brehhm of TriQuint-Dallas participated in a panel session on the status and progress of current wireless simulator software. Enhanced linear, nonlinear, digital, EM field simulators capable of handling complex modulation schemes are a must to achieve rapid, correct first time, designs. Giga-byte size simulation software is already here with HP's Advanced Design System suite.

Misty Baker of GWEC, Les Besser of Besser Associates, and Anh-Vu Huynh Pham from George Tech provided trends in training a technology that becomes obsolete within a year. An engaging panel session on educational issues followed which also brought three more educators to the front of the room for this interactive discussion.

Continued on page 6

Students' Corner

Over the last month, the USF IEEE student branch has been very active with meetings, fundraisers and the Southeast Conference Car Project. At this time, we would like to thank all of the guest speakers that participated in our meetings.

March 3rd Panel Session

Doug Gillespie - Honeywell
David Bailey - Automated Engineering Co.
Jim Reed - Con Agra / Singleton Seafood
Butch Shadwell - Shadwell Consultants
Bert Schultz - Group Tech

March 17th Meeting

Rob Benson - Johnson Controls

March 31st Meeting

Bert Schmitz - GaAs Tek ITT Industries

IEEE student branch would also like to thank Dr. Larry Dunleavy for all of his involvement this semester in helping provide IEEE with speakers. On March 4th we had a successful cookout fundraiser at the USF Tampa campus. We would like to thank all the IEEE members, students and Electrical Engineering staff that participated in this event.

Southeast Con

USF EE students Andrew Moran and Mike Ware recently attended the IEEE Southeast Conference in Lexington, KY. They competed in the Hardware Design Contest, along with students from 19 other universities throughout the Southeast. The contest was to build a self-propelled, autonomous electric car that would complete tasks on a pre-designed course. The car uses infrared sensors to follow a white line throughout, as well as an electromagnet to obtain a steel ball-bearing and deposit it into a receptacle in order to earn points.

The USF team competed well, despite some mechanical problems, partly due to the long trip to Kentucky. The top eight teams went on to the semi-finals, but USF was not among them. Other Florida teams also made a good showing; University of North Florida made the semis and the University of West Florida came in first overall. The University of South Alabama finished second, followed by Tennessee and the Citadel, a first time competitor.

Andy and Mike enjoyed the competition and their trip to Kentucky. They would like to thank Dr. Paris Wiley for all of his help and the USF IEEE student branch for their assistance with funding the trip.

Graduation

Don't forget that the EE department will be sending 50 graduates into the working world on May 1st. Keep your eyes open for these highly qualified and anxious to work individuals.

Officer Elections

Elections for student officers were held on Wednesday April 7th. The newly elected officers for fall 1999 are as follows:

Chair:	John Tatum	Vice Chair:	Daniel Faria
Treasurer:	Brad Speed	Secretary:	Brian Zilka
Secretary:	Edward Levy	Program Chair:	Mike Mills
Expo Chair:	Jason Sanon		

We would like to welcome and congratulate all of the new officers. To the officers leaving the program, thank you for all the hard work and good luck!

May Brain Teaser Challenge

by Butch Shadwell

The following is a reprint of the BTC from 1995 -

We don't often speak about it, but as it turns out, there is a branch of my family that has lived in the Appalachian hills for many generations. This is a crowd who considers having 50% of their teeth and a spouse that is only a second cousin to be major accomplishments. Well, my cousin Zeke has also been nipped by the electrical engineering bug. In order to assist cousin Jeb with the proper processing of his sour mash, Zeke built a device to count the number of cups of booze produced. It was a simple one cup tipping device that would hit a microswitch when it tipped. The microswitch was then attached to common decimal counting IC's with a seven segment display. When a gallon jug was filled cousins Larry, Darrel and Darrel would take it for delivery.

At the end of the first week Jeb was ready to shoot cousins Larry, Darrel and Darrel. It seemed the counting device indicated that the still had produced fifty gallons of shine while the boys only delivered eleven. After Larry, Darrel and Darrel finally convinced Jeb that they had not consumed 39 gallons of 100+ proof moonshine, Jeb asked Zeke to check out his high tech contraption.

As Zeke began his investigation, he noted that whenever the measuring cup filled, it tipped reliably and that every time it did he could hear the microswitch make a single clean click sound. However, when he turned his attention to the display he could see that for each click of the switch the display would add two to five counts. Wiring errors and power supply problems were eliminated. What was Zeke's problem?

Reply with the IEEE Florida West Coast Section Suncoast Signal reference to Butch Shadwell by the 20th at (904)223-4465 (voice), 904-223-4510 (fax), b.shadwell@ieee.org, 3308 Queen Palm Dr., Jacksonville, FL 32250-2328. (<http://www.ccse.net/~butchs/>). Only the names of correct respondents are mentioned in the solution column on the next Signal.

April Brain Teaser Challenge Solution

Marvin's hand washing problem is probably more common than folks would like to admit. In any case, I'm sure there are probably several ways to make a rotating actuator that locks in both directions when it is not being driven. The one I was thinking of is using a worm gear attached to the shaft of the motor, in turn driving a pinion gear. The nice thing about this design is that when the motor turn the worm gear in either direction the pinion gear is rotated in both directions, but when the worm gear is stationary the pinion can not be moved (except by breaking the teeth off).

Continued from page 4

This forum provided a quick one day study and interactive discussion of wireless technology and future developments that are creating new applications for these devices as seen from industry, government, and universities.

A post-conference electronic digest has been prepared which contains postings of the presentation materials for this forum. Please refer to the website http://ee.eng.usf.edu/research_labs/WAMI/workshop/

Larry Miller, Trak Microwave – Tampa, FL

Larry Dunleavy, University of South Florida – Tampa, FL

Ray Pengelly, Raytheon Commercial Electronics – Andover, MA

Trends in Municipal Automation

Sponsored by

Montgomery Watson, Tampa Armature Works, Inc., and Siemens Energy Automation

Tampa Armature Works, Inc., and Siemens Energy and Automation cordially invite you to attend a **one-day** seminar on **Trends in Municipal Automation**.

When: Wednesday, May 12, 1999

Time: 8:30 a.m. - 3:30 p.m.

Where: Energy Technical Resource Center
University of South Florida - Tampa Campus

Reservation: Please complete and return registration form below

This course will review trends in municipal SCADA systems and is geared towards engineers and operators involved in the selection and operation of SCADA technologies. Emphasis will be put on the developing and understanding of changing technologies in municipal plant-based and remote SCADA systems in order to better anticipate and select Automation Systems for the future.

Space is limited, due to a limited number of training systems. Reservations must be made in advance by filling out and returning the registration form below. There will be a nominal fee of \$65.00 per person. Lunch will be provided.

Tampa Armature Works, Inc.
440 South 78th Street, Tampa, FL 33619
Phone: (813)621-5661
Fax: (813)622-7040
Registration Form: ATTN - Susan Brady

Company Name:

Company Address:

Attendee Name:

Attendee Title:

Attendee Phone:

Method of payment for \$65.00 fee _____ Check _____ Other

Registrations will be confirmed on a first come / first serve basis.

Annual Awards and Recognition

by John Twitchell

The Section's annual awards banquet was held at the Rusty Pelican this March. We had the pleasure of recognizing several FWCS members for their accomplishments, as well as presenting the Lignell Awards to area high school teachers. Jules Joslow and Donna Howard were both honored for their years of service to the Section, as well as Jim Beall, a past Section Chair, for his accomplishments. Chair Al Rosenheck recognized both the incoming and the outgoing officers. We are pleased to announce this year's Lignell Awards to: Jeff Miller of Gulf High School in Pasco County (check out Jeff's web site at <http://members.aol.com/jeff570/mathword.html>), Dr. Michael Way from the Center for Advanced Technologies at Lakewood High School in Pinellas County, and Margaret Oggero of East Bay Senior High School in Hillsborough County. Thank you teachers for your time, effort, and dedication to our future engineers!

Region 3 (Southeast U.S.) of IEEE held its meeting in conjunction with SoutheastCon '99 in late March in Lexington. FWCS member Jim Beall received the Regional Activities Board Leadership Award as well as the Region 3 Outstanding Service Award. Alabama Power was the first recipient of the Employer Professional Development Award, and David Green (Region 3 Secretary) received the Professional Leadership Award. Outstanding Engineering Educator went to Dr. Gregg Vaughn of UAB, and Outstanding Engineer to Darrell Piatt of Southern Company. Not the least was an award to our own Joey Duvall, for her work with Students.



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May 1999 Calendar of Events

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1
2	3	4 IEEE-FWCS Executive Committee Mtg at TECO Data Ctr 6:00PM	5	6	7	8
9	10	11 MTT/AP/ED Meeting @ Raytheon E- Systems 6:00 PM	12 Seminar: Trends in Municipal Automation USF 8:30 AM	13	14	15
16	17	18	19 Section & Comp/AESS Joint Meeting @ TECO Data Ctr 6:00PM	20	21	22
23	24	25	26	27	28	29
30	31					

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