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# THE SUNCOAST SIGNAL

THE INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS, INC.

Volume 50 — No. 3

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

March 2007



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## *Multiple Coupled Resonator Filters and Multiplexers*

### *MTT/AP/ED Chapter Meeting*

**Dr. Kawthar Zaki - University of Maryland  
Dept. of Electrical and Computer Engineering**

Tuesday, March 20, 2007, 6:00 PM

Multiple coupled resonator filters having general (symmetric or asymmetric) response are reviewed. Examples of the design of practical filters with symmetric or asymmetric response and / or topology are presented. For details see page 4.



## *Major Changes—2007 NESC®*

**Mickey Gunter**

Tuesday, March 20, 2007; 9 am to 3 pm

The Major Changes of the 2007 NESC® seminar is a one-day class focusing on the major changes in the 2007 Edition of the National Electrical Safety Code® (NESC®). For details see page 3.

## *This May be Your Last Signal*

If you have not renewed your IEEE Membership, your name will not be included on the March database download for Signal labels.

Please make sure you have paid your membership dues to avoid missing this Newsletter plus other benefits.

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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.

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## Editor's Column

Well, the Celebrate Engineering Banquet was a huge success. We did not have time to write the whole story and pictures but that will come next month.

The Student Branch ran a fun spring picnic at Riverfront Park. Again, we had Greek Souvlaki for lunch which it a big step up from the usual fare of hotdogs and hamburgers (which were also present). Here too, the story will come next month although there are two pictures on page 7.

March is a busy month with Mickey Gunter (p. 3), Kawthar Zaki (p. 4), and David Richards (p. 7) all speaking.

—PS



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## TISP News

For the Great American Teach In 2006, Bojana Zivanovic and Suzette Presas attended Greco Middle School in Tampa where the students built electrical circuits and asked questions geared toward engineering. Sean Denny was asked by Rob Reilly Ed. D., IEEE Education Society to establish an Education Chapter for the FWCS. Region 5 is holding a Teacher In Service Training in Dallas starting July 13. Please contact me, [venner20@aol.com](mailto:venner20@aol.com) or Doug Gorham, [d.g.gorham@ieee.org](mailto:d.g.gorham@ieee.org), for more information.

The Lignell Outstanding Teachers Award were presented at the Celebrate Engineering Banquet on Feb. 16, 2007. The Winners are:

**Steve Banister, AP Physics Science Teacher**  
**at C. Leon King High School in Hillsborough County**

**Jennifer Ingersoll, Math Department Head**  
**at Pasco High School in Pasco County**

**Antonio Young, Advanced Earth Science Teacher**  
**at Bay Point Middle School in Pinellas County**

The winners have received welcome packets about participating in the Teacher In Service Program. Interested teachers or Science or Math Supervisors please contact Sean ([venner20@aol.com](mailto:venner20@aol.com)). You may also request topics for special training sessions between Engineers and Educators. Last year between Pinellas and Hillsborough County, there were presentations on Motor Controllers, Ohm's Law, and Thermocouples. The attendees arranged from 10 to 30 teachers. Their feedback helps the IEEE get engineering into local schools.



## Major Changes—2007 NESC®

Mickey Gunter

|  |   |
|--|---|
| <p><b>Date:</b> Tuesday, March 20, 2007</p> <p><b>Time:</b> Registration &amp; Breakfast 8:30-9:00 AM, Seminar 9:00 AM – 3PM</p> <p><b>Location:</b> TECO Hall, Tampa Electric Company, 702 N. Franklin Street, Tampa</p> <p><b>Cost:</b> \$75 Members, \$150 Non-Members, \$30 Students includes Breakfast, Lunch</p> <p>Your local IEEE PES/IAS Chapter is offering this seminar on Major Changes of the 2007 NESC®.</p> | <p><b>RSVP:</b> Online at: <a href="http://time2meet.com/fwcs-pes4/index.html">http://time2meet.com/fwcs-pes4/index.html</a> Make checks payable to: IEEE FWCS. Space limited to the first 50 registrants!!!</p> <p><b>Send checks to:</b> Ralph Painter, IEEE FWCS Treasurer<br/>648 Timber Pond Drive Brandon, FL 33510-2937</p> <p><b>Questions:</b> Tom Blair at 813-228-1111, ext 34407 or <a href="mailto:thblair@tecoenergy.com">thblair@tecoenergy.com</a></p> <p><b>5 PDH Credits</b> will be awarded. Be sure to enter your name and PE number on the signup website as it appears on your license. Florida exempt provider #00015.</p> |
|--|---|

The Major Changes of the 2007 NESC® seminar is a one-day class focusing on the major changes in the 2007 Edition of the National Electrical Safety Code® (NESC®). The training will be about a 5 hour update on all the significant changes to the 2007 NESC using a Power Point presentation. It will include changes to the Introductory Rules and Definitions, Grounding, Substations, Overhead Clearances, Overhead Strength and Loading which will include the new Extreme Ice and Wind Loading Rules, Underground, and Work Rules. Examples will be shown on how to apply some of these rules. Also, time permitting, there will be a demonstration of a Pole Loading Program.

The class includes ample time for questions and attendees are encouraged to share their NESC® applications. Learning the changes in the NESC® is a must for personnel responsible for operating a safe utility system. This seminar is being sponsored by **Tampa Electric Company**.

**Mickey Gunter** has his Bachelor of Science in Industrial Engineering from Georgia Institute of Technology. He has over 38 years experience in Distribution Engineering Design, Standards, and Training. He presently serves on (3) ANSI C-2 National Electrical Safety Code (NESC) Sub-committees (Sub-committee 4, Sub-committee 7, and the Interpretations Committee); the Southeastern Electric Exchange (SEE) NESC (Chairman); and the Edison Electric Institute (EEI) NESC (Sub-committee 4). He is active in the NESC since December 1991. He has actively participated on the 1997, 2002, and 2007 NESC revisions. He is currently involved in teaching National Electrical Safety Code schools for the Southern Company and various other electric utilities.



### IEEE SoutheastCon 2007!

Don't miss out on the biggest engineering event of the year – SoutheastCon 2007 is happening in Richmond, Virginia, March 22 – 25, 2007, at the Downtown Marriott. Time is running out and Conference registration is hot and heavy.

Get your registration NOW. The student programs include the infamous hardware, software, paper, poster, t-shirt, and website competitions. This is the most populated technical program ever. Over 260 papers covering a wide engineering spectrum of research have been submitted,

165 papers and 66 abstracts have been accepted, as part of the technical program. Several tutorials, seminars, and workshops are available to you. Make the choice to attend. Register now to get the early price. Registration is easy.

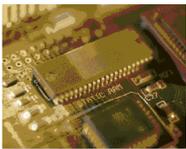
<http://www.southeastcon.org/2007/register/>

### Virtual Versus Real Communities

A study in November by the Annenberg School Center for the Digital Future at the University of Southern California found that virtual communities such as MySpace are becoming as important to Internet users as their real-world acquaintances. Forty-three percent of Internet users who are members of online communities say they "feel as strongly" about their virtual friends as they do about their real-life friends. Do you think virtual relationships can be as meaningful as real-life relationships, or is interaction in the real world key for relationships to work? Weigh in at <<mailto:institute@ieee.org>>

And read responses to November's question on whether you think fining Australian spammers millions of dollars was a just punishment. See what members had to say at

<http://bmsmail3.ieee.org:80/u/5455/00939637>



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## *Enforcement of Mandatory Standards for the Nation's Bulk Power System.*

Date: Friday, April 27, 2007

Time: 12 Noon (Lunch Included – Reservation Req.)

Speaker: Gerry Cauley, President and CEO of the SERC Reliability Corporation

Location: Florida Reliability Coordinating Council (FRCC)  
1408 N. Westshore Boulevard, Suite 1002  
Tampa, Florida 33607-4512

Cost: \$10 Members, \$15 Non-Members, Student Members \$5

RSVP: Online at: <http://www.ewh.ieee.org/r3/floridawc/>  
(Select Reservations)  
Make checks payable to: IEEE FWCS

Questions: Tom Blair at 813-228-1111, ext 34407 or [tblair@tecoenergy.com](mailto:tblair@tecoenergy.com)

The Electric Reliability Organization

Gerry Cauley, president and CEO of the SERC Reliability Corporation and former vice president of standards at the North American Electric Reliability Corporation, will present on the timely topic of the enforcement of mandatory standards for the nation's bulk power system. Standards are expected to become effective on June 1, 2007 under Section 215 of the Federal Power Act. Under Section 215, the Federal Energy Regulatory Commission has the authority to delegate standards setting and enforcement powers to an electric reliability organizations and regional entities.



## *Multiple Coupled Resonator Filters and Multiplexers*

*MTT/AP/ED Chapter Meeting*

**Dr. Kawthar Zaki - University of Maryland  
Dept. of Electrical and Computer Engineering**

**DATE/TIME:** Tuesday, March 20, 2007, 6:00 PM

**PLEASE RSVP** Leave name & country of citizenship with Ken O'Connor at (813) 901 7246 by March 12<sup>th</sup>: Email: [koconnor@trak.com](mailto:koconnor@trak.com)

**LOCATION:** TRAK Microwave Corporation  
4726 Eisenhower Blvd., Tampa, FL

For driving directions, contact [Ken O'Connor](mailto:Ken O'Connor) or go to <http://maps.google.com/> and search address.

**ABSTRACT:** Multiple coupled resonator filters having general (symmetric or asymmetric) response are reviewed. Examples of the design of practical filters with symmetric or asymmetric response and / or topology are presented. Realizations of filters with various topologies with optimum responses, having certain advantages in packaging, in dielectric loaded resonators, metallic loaded resonators, combine resonators or waveguide resonators are presented. Design of diplexers and multiplexers are presented.

# 2007

# IEEE Power Engineering Society General Meeting

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### TAMPA is a family destination city.

While you're in Tampa a single day's itinerary might include breakfast at a waterside café, Busch Gardens, The Florida Aquarium, a streetcar ride to Channelside for shopping and a Tampa Bay Devil Rays game.

Cultural endeavors: Dramatic productions from opera to orchestras bring patrons to their feet in applause at the performing art center and other cultural venues such as The Salvador Dali Museum, and the Tampa Bay Museum of Art where Georgia O'Keefe and Her Time is a featured exhibit.

For the family: Tampa offers a wide variety of activities including, the Big Cat Rescue, Dinosaur World, Busch

Gardens Tampa Bay, the Florida Aquarium, The Lowry Park Zoo, and the Museum of Science and Industry.

Past and Present: The Henry B. Plant Museum offers a taste of how the other half vacationed at the turn of the 20th Century. Once you've toured the Plant Museum, the Tampa Bay History Center offers a look back at archeological discoveries, including a cache of 10,000-year-old weapons, while pop culture buffs can catch a glimpse of 1950s souvenirs. The wood-planked Ybor City State Museum and the 100-year-old Columbia Restaurant are worth the time and the visit.

WATCH for details about a dynamic companion program.



Hosted by Tampa Electric



## Brain Teaser Challenge Column

—By Butch Shadwell

**February BTC** For our Martin Luther King day celebration we discussed TV designs from the 60's; "...the smaller B&W TVs used a voltage doubler circuit to generate the B voltage for the vacuum tube circuitry. It could produce a B supply voltage almost equal to twice the peak voltage on the mains. Usually one side of this power supply was tied to the AC neutral directly. How was the other side of the input to this doubler circuit tied to the AC hot leg?"

Quite a few of the older readers woke up long enough to reply to this one, and most got it right. In this design for the B+ power supply, they would tie one side of the supply input to the neutral lead from the power cord and the hot lead was coupled through a capacitor into the voltage doubling diodes. I wish I had time to create a graphic for you of the schematic, but if you Google "voltage doubler" I bet you can find the circuit with the capacitor input. This circuit configuration is actually a kind of current pump, and it has the ability to produce an output voltage up to twice the peak line voltage, either above or below ground. The actual output voltage as you might imagine, depends on the size of the capacitor and the load current draw. But I bet you already knew that.

**March BTC** As I was approaching the conclusion of my high school days, I had my heart set on attending Clown College in Venice, Florida. My family didn't have much money, so for me going to college was dependent on getting scholarships. The financial aid office at CC required a video with my best gags, along with the application for assistance. You can't imagine my dismay when I finally got the letter denying my application for aid. Their review committee said that I just wasn't funny enough. To have my hopes for higher education and the career prospects that go with that, destroyed by a panel that probably thinks 20 clowns coming out of a taxi is funny. Maybe my nose wasn't red enough, or my floppy shoes weren't quite big enough. I can only speculate. My world was dark.

Fortunately, my fallback plan came through when I got my Presidential Appointment to the U.S. Naval Academy at Annapolis, Maryland. After my plans for fame and fortune as a professional mirth maker crumbled, getting paid to study electrical engineering at Navy didn't sound too bad.

While at the academy, I built their first student TV studio. We called it WMID, but we didn't actually transmit anything. Of course in those days, 1970, everything was analog and still mostly vacuum tubes. At least the vintage stuff they let us have was all tubes. Vacuum tubes and FETs have a spec called transconductance which is measured in mhos. Let's say a triode has its cathode and

plate tied to voltage sources, and the starting grid voltage causes a plate current of 200 mA. If this triode has a transconductance of 1000 mmhos, what happens to the plate current if we make the grid more negative with respect to the cathode by 1 mV? Smile you could be on Candid Camera.

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

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## Wyndrum Cites Productivity, Innovation and Entrepreneurship

WASHINGTON (22 January 2007) -- U.S. engineers need to hone their competitive edge through continuing education and focus on productivity, innovation and entrepreneurship to maintain rewarding careers, 2006 IEEE-USA President Dr. Ralph W. Wyndrum Jr. told BusinessWeek magazine.

"America's leadership in technology has underpinned our economic prosperity for the past half century," Wyndrum said. "But we have no monopoly on smart people, capital investment or the will to succeed. As developing economies use comparative labor cost and other advantages to build competing industries based on mature technologies, the United States can best create new jobs and new opportunity by leading the way with new technology."

Wyndrum shared his perspective alongside Intel Chairman Craig Barrett; Charles Vest, president-elect of the National Academy of Engineering; and Rick Rashid, Microsoft senior vice-president of research, among others. The article is available at [http://www.businessweek.com/smallbiz/content/jan2007/sb20070118\\_135378.htm](http://www.businessweek.com/smallbiz/content/jan2007/sb20070118_135378.htm)



*IEEE FWCS - EMBS Chapter*

**IEEE Engineering in Medicine and Biology Society**

*“Ongoing Biomedical Research Projects at the  
USF Department Of Ophthalmology”*

*Dr. David Richards*

*USF Department of Ophthalmology*

Date/Time: March 28, 2007 (Wednesday) / 6:00 pm

Place: University of South Florida—ENB 109

**Abstract:**

The following projects will be discussed briefly:

1. Digital imaging of the retinal nerve fiber layer for detection of glaucoma.
2. Probabilistic modeling of optic nerve damage in Glaucoma.
3. Non-invasive measurement of intraocular pressure using pressure phosphenes and visual evoked potentials.
4. Mini-tonometer tip for intraocular pressure measurement by applanation of the cornea.
5. Multi-spectral digital holography of the retina and cornea.

**Speaker:** David Richards is an Associate Professor of Ophthalmology at the University of South Florida - College of Medicine. He received A.B. degree (Astrophysical Sciences) from Princeton University, Ph.D. (Radio Astronomy) from Cornell University, and M.D. from University of Miami, Ophthalmology Residency from Medical College of Virginia, and Richmond Glaucoma Fellowship, Bascom Palmer Eye Institute, Miami.

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*Student Activities  
Picnic Pix*



Mar. 2007 Calendar of Events (For more information see P. 1 *Inside this Signal...*)

| Sunday          | Monday | Tuesday   | Wednesday   | Thursday  | Friday          | Saturday        |
|-----------------|--------|---|---|---|-----------------|-----------------|
| 25              | 26     | 27  | 28  | 1   | 2               | 3               |
| 4               | 5      | 6 <u>5:30 pm</u><br><i>IEEE FWCS<br/>ExCom<br/>TECO Tampa</i>                     | 7   | 8   | 9               | 10              |
| 11              | 12     | 13  | 14  | 15  | 16              | 17              |
| 18              | 19     | 20 <u>6 pm:</u><br><i>Filters etc. p.4</i><br><hr/> <i>9 am-3 pm<br/>NECS p 3</i> | 21  | 22 <i>SECon<br/>Richmond VA<br/>p. 3<br/>Through 2/25</i> | 23 <i>SECon</i> | 24 <i>SECon</i> |
| 25 <i>SECon</i> | 26     | 27  | 28 <u>6 pm:</u><br><i>Bimedical<br/>Reseatvh. p.7</i> | 29  | 30              | 31              |

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