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**THE**

**SUNCOAST**

**SIGNAL**

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**December 2007**

*This Month's Meetings*



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*IEEE Color Book Seminar Series - IEEE 141  
(The Red Book) – Recommended Practice for  
Electric Power Distribution for Industrial Plants*

Date/Time: Friday, December 14 2007 / 9:00 am-3:00 pm

Speaker: **Thomas Blair**, P.E., Senior Consulting Engineering, Tampa Electric Company

This seminar will cover the main topics from IEEE 141 of Short Circuit Calculations, Application and Coordination of Protective Devices, Grounding, Power Factor and Related Considerations, and Harmonics in Power Systems. [For more, see p. 5]



**Happy Holidays**

**THE FLORIDA WEST COAST SECTION WISHES ALL A HAPPY,  
JOYOUS, AND SAFE HOLIDAY SEASON.**



*Last Minute Notice: Future GOLD Meeting*

**Thursday, December 13, 2007; 6 pm—SPECIAL GUEST SPEAKERS  
1911 N. 13<sup>th</sup> Street, Tampa. Watch the Registration Page more details**

Your local GOLD (Graduates of the Last Decade) Chapter is hosting this meeting to plan for your future and the future of your GOLD Chapter. Join us for a great discussion and presentation. Friends, spouses, etc. are all invited to this most unique opportunity.

RSVP Required, Online at: <http://www.ewh.ieee.org/r3/floridawc/> (Select Reservations)  
Space limited to the first 30 registrants! For info contact: Timothy M Doolittle—  
[tdoolittle@tmdvault.fastmail.fm](mailto:tdoolittle@tmdvault.fastmail.fm).

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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:

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## Our Needs (Editor's Column)

• One of the pleasures of being involved with FWCS activities is to see the advancement of members. Congratulations to our newest Senior Members, John West and Rudolfo Roger. Welcome to your new status.

• Speaking of honors, read about the Celebrate Engineering Banquet on page 3. This party is held annually to recognize both the engineering profession, it is held during National Engineers' Week after all, and a number of individuals who have contributed to the profession or society. Mark your calendars for February 15<sup>th</sup> 2008 and come on out.

• My last point this month is about a pet interest of mine: the place for Creativity in Engineering. The study of engineering, and particularly EE, is an intense, rational discipline. Students often come to think that if they can learn the material presented, they will be able to perform exceptionally as engineers.

The reality is that the truly important work comes when you are asked to solve difficult problems. These are the ones which never show up in your classroom or text. How do deal with that? Creatively!

However, for many, the very word "Creativity" is disturbing. Creativity is for artists, writers, composers and the like, not for engineers, right? Not right!

I have been working actively with creative individuals and the topic of creativity for many years. Now I am teaching a 3-credit graduate level course in the subject and in November, I spoke at S-PAC on this topic. This subject is important, and, for many, off-putting, more to come in the future.

—PS



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## The Lignell Award Outstanding Teacher Recognition Program

The Florida West Coast Section (FWCS) participates in the Lignell Award Outstanding Teacher Recognition Program to honor outstanding contributions by High School teachers to pre-college education in Mathematics and Science in Hillsborough, Pinellas and Pasco Counties. The closing date for nominations is December 21<sup>st</sup>, 2007. For applications and information contact Sean Denny, [venner20@ieee.org](mailto:venner20@ieee.org), phone: 727-381-7237.

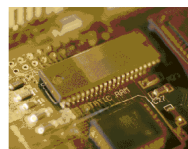
## *Plan Ahead: Mark Your Calendar For The Celebrate Engineering Banquet!*

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 Alliances 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.

We will be accepting reservations for this event shortly. 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



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## *Seminar on Standards on Sizing, Operation and Maintenance of Batteries*



On Friday, October 19, at the University of South Florida, Lakeland Campus, your IEEE PES/IAS Florida West Coast Chapter hosted a seminar on Standards for the sizing, operation and maintenance of Batteries. The seminar was presented by Marco W. Migliaro who is a Fellow IEEE member. The classroom was full and the material was well covered. We received many positive comments regarding this important topic. It was great to see IEEE standards address in training.

Many thanks to the University of South Florida for making the facilities available for this great seminar and to Randy Dotson with Lakeland Electric for all his efforts in the arrangements. Also many thanks to Cliff Clancy and John Todora for their support in arranging this seminar and thanks to Nolan Power for Sponsoring Marco's time and travel.

—Tom Blair



## 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 Annual Report is on line as an Acrobat file at:

[http://www.qmags.com/d.asp?pub=IEEEAR&upid=ARreport06&fl=others/IEEEAR/IEEE\\_AnnualReport06.pdf](http://www.qmags.com/d.asp?pub=IEEEAR&upid=ARreport06&fl=others/IEEEAR/IEEE_AnnualReport06.pdf).

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## Career Opportunity

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 position.

### RELAY APPLICATION ENGINEER

Beckwith Electric Co., Inc. is seeking a qualified individual as a Relay Application Engineer with the following requirements and responsibilities:

This individual will work closely with the Department Managers and Regional Sales & Application Managers to develop and implement marketing programs for the development of sales growth and customer service activities. The individual will also "troubleshoot" specific customer problems or marketing issues and propose solutions and changes that may be required for satisfactory resolution.

He or she will provide technical services to customers and in support of the company relating to the application, setting, and operation of the company's products and systems with particular emphasis on the firmware, software and communications capabilities.

The position requires a Bachelors in Engineering, with a preference for BSEE, or 7-10 years equivalent experience. In depth knowledge in the application of generator and transformer protection relays is required. Training and first hand knowledge of hardware, firmware, software and communication requirements to integrate IED's into electric utility energy management, SCADA, and automation and control systems is also required.

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## ***IEEE Color Book Seminar Series - IEEE 141 (The Red Book) – Recommended Practice for Electric Power Distribution for Industrial Plants***

Date: Friday, December 14 2007

Time: 9:00 am-3:00 pm

Speaker: Thomas Blair, P.E., Senior Consulting Engineering,  
Tampa Electric Company

Location: USF Tampa Campus, College of Engineering,  
Fowler Ave, Tampa, FL

Space is limited to 35 attendees. NOTE YOU WILL NEED TO PURCHASE A ONE DAY PARKING PASS from the visitor center at the main entrance off fowler.

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 # 0003849.

Cost: USF Students with ID FREE - \$75 Members ,  
\$125 Non-Members. (Includes Lunch)

Note: This course will be available by webcast on APEX for which there will be an additional fee.

RSVP: Select Reservations online at:  
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**Your local IEEE PES/IAS Chapter is offering this seminar on IEEE 141 IEEE Recommended Practice for Electric Power Distribution for Industrial Plants (The Red Book) as part of a series of seminars based on the IEEE Color Books. We plan to host one seminar per semester starting fall 2007 at the University of South Florida to support the Power Program at USF and provide students and local members with information on IEEE standards. This course will also be available via APEX distribution system. Please contact Dr. Ralph Fehr for more details on availability of Apex materials.**

This seminar will cover the main topics from IEEE 141 of Short Circuit Calculations, Application and Coordination of Protective Devices, Grounding, Power Factor and Related Considerations, and Harmonics in Power Systems. This seminar will present guidance in design, construction, and continuity of an overall electrical distribution system to achieve safety of life and preservation of property; reliability; simplicity of operation, care and maintenance, and flexibility to permit development and expansion. Recommendations will be made regarding system planning; voltage considerations; system protective devices; fault calculations; grounding; power switching, transformation, and motor-control apparatus. Examples of fault calculations, relay coordination, and associated incident energy levels using commercially available software will be demonstrated.

**Thomas Blair is a Senior Consulting Engineer with Tampa Electric and works in the Generation Engineering department. He performs electrical system analysis and uses the results to specify electrical equipment ratings, protective relay settings, and electrical system arrangement. Mr. Blair is a Senior Member of IEEE and Chair of the local PES/IAS Chapter.**



## ***Free Development Software for IEEE Computer Soc. Student Members***

All student members who join the IEEE Computer Society are now eligible to select and download software from Microsoft. Available software includes Vista Business Edition, Visual Studio Team System, Expression Web Designer, Project 2007, Visio 2007 and Windows Server 2003. A user account with login information will be

e-mailed on acceptance of an IEEE Computer Society application for student membership. For more information, and to join the Computer Society, go to <http://www.computer.org/join>.

CONTACT: Georgann Carter, IEEE Computer Society, +1 202 371 0101

## USF Student Branch News

The Student Professional Awareness Conference (S-PAC) was held **November 20, 2007** at USF, Tampa Campus. The speakers and topics were:

Ms. Diane Russell – Career Center Resources

Dr. Kenneth Buckle – The Importance of Graduate Studies

Professor Dolores Gooding – Engineering Management

Dr. Paul Schnitzler – Creativity in an Engineering Career

The turn-out was excellent, perhaps aided by the excellent refreshments.

The Fall Student Senior Banquet will be held December 7, 2007 in the TECO Room in the Education Building at USF, Tampa Campus from 7:00PM – Midnight. We are still able to accept companies or individuals to **SPONSOR** us. Please get in touch with Kosol Son, [kson@mail.usf.edu](mailto:kson@mail.usf.edu); tables can be sponsored for \$200 a table, and you are welcome to sponsor more than one table. The banquet is a GREAT opportunity to recruit newly graduated engineers!

Sponsor list as of time of publication:

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## What Should Be the First Engineering Professional Degree?

From *The Institute* print edition —By Moshe Kam & Arnold Peskin

We'd like your opinion. Should the first professional degree in engineering be at the Bachelor or Master level?

The IEEE is considering whether to follow the recommendations of several other professional bodies and declare that a Master of Science or Master of Engineering (rather than Bachelor-level degrees) should be an engineer's first professional degree. While electrical and computer engineers make up the IEEE's single largest group of engineers (with mechanical engineers forming the next largest contingent) the policy being worked on--in collaboration with other professional associations--will address all branches of engineering. To help guide the IEEE's position, we are soliciting our members' opinions.

THE BASICS Let us start with some background. The first professional degree in engineering is the customary degree needed for the practice of engineering. Practice is understood to be carried out in an industrial setting, and does not require much additional training.

However, it is widely accepted that in a field as large and diverse as engineering, some specialties require more



## Understanding Biomedical Patents Strategies

The EMBS group had its second seminar on October, 17<sup>th</sup>, 2007. The lecture, presented by Dr. Bruce Friedman, introduced the elements to understanding a key subject in Biomedical Engineering: Intellectual Property and Patents.

Dr. Friedman started by referring to Article I, Section 8 of the United States Constitution "Congress shall have the power to promote the progress of science and the useful arts by securing for limited times to authors and inventors the exclusive right to their respective writings and discoveries".

He then presented graphics which made evident that filing of patents has increased at an outstanding rate during the past few years. While a million patents were filed between 1991 and 2001, the same number was filed between 2001 and 2006.

The presentation showed that most Biomedical Patents are filed by private industry, with only a small percentage being originated at universities.

Dr Friedman delineated the conditions for an invention to be considered as such: New, Non Obvious, and Useful and he also made reference to the mechanisms to obtain a patent from the US Patent and Trademark Office (USPTO).

Finally, Dr. Friedman showed through an example of a Medical Device, how the invention and patent submission processes take place in real life.

Nineteen people attended the seminar and actively participated by asking questions to the presenter.

Rodolfo G. Roger, Secretary EMBS IEEE FWCS



training. For example, researchers and academics often need advanced degrees. Individuals who branch into sales and marketing often seek additional degrees in business administration. Still, the concept of the first professional degree is useful, since it informs the public (and licensing bodies) about the minimum requirements that qualify an aspiring professional for practice.

For more information on the European Commission's Bologna Process, see [http://ec.europa.eu/education/policies/educ/bologna/bologna\\_en.html](http://ec.europa.eu/education/policies/educ/bologna/bologna_en.html). For the American Society of Civil Engineers' view on academic prerequisites, visit [http://www.asce.org/pressroom/news/policy\\_details.cfm?hdid=15](http://www.asce.org/pressroom/news/policy_details.cfm?hdid=15).

Kam is vice president of IEEE Educational Activities and Peskin is a staff member with the IEEE Educational Activities department in Piscataway, N.J.

# Brain Teaser Challenge Column

—By Butch Shadwell

**November BTC** In reference to a recent patent application I asked about "...a strain gauge sensor. In this case they are metallic resistive elements. Due to the coefficient of expansion of the material to which the gauge is attached, these sensors can have a lot of thermally induced error. Can someone suggest a circuit configuration to minimize this effect? A little hint, I was sitting in the west seat when it came to me."

At least one reader wrote to tell me he didn't get the hint at the end. Sorry about that. I am pretty sure that in the card game of Bridge the players are identified as seated at the four compass points. The best answer to the question was a bridge circuit configuration. The key point is that the active elements of the sensor must be thermally coupled well. You could use a half bridge sensor which uses regular resistors for one side of the bridge, or double your signal and use a full bridge sensor, where opposite sides of the bridge are mounted to compress or expand at the same time. (See figure below.) But I bet you already knew that.

**December BTC** One of the most fun things I do is mentor high school science fair students. Many have gone on to some impressive careers in engineering and applied science. I was recently contacted by one of these great kids saying that he wanted to interview me as part of an assignment in one of his ME classes at GT.

This fellow had done some experiments in high school with an acoustical engine of his own design. Besides being extremely bright, this young fellow had an amazing tenacity. Regardless of what difficulties and problems came



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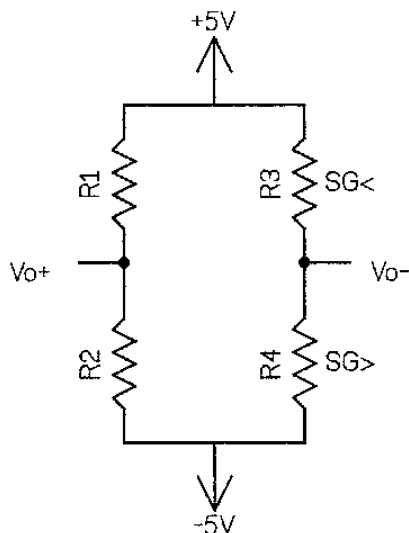
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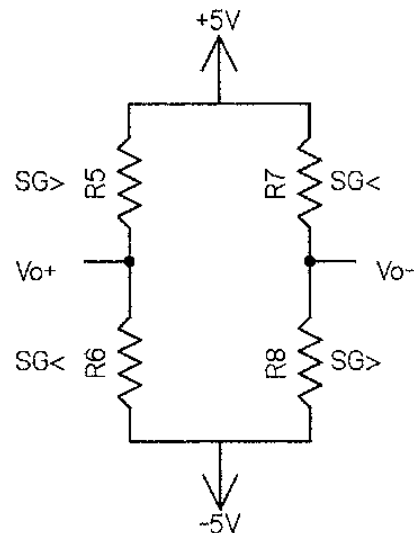
up with his project, he was tireless at finding the answer. Certainly a rare quality these days.

This device involved a heat source. As you all know, maintaining a constant temperature in a system means that heating power supplied must equal the rate of heat dissipation. All systems lose heat by conduction, convection, radiation, and sometimes matter change of state of the heated substance, where those atoms and molecules are allowed to escape. 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.

**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.






Half Bridge Strain Sensor



Full Bridge Strain Sensor



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

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1 2	3	4 <u>5:30 pm</u> <i>IEEE FWCS ExCom TECO Tampa</i>	5 <i>Chanukah begins</i>		7	8
9	10	11	12	13 <u>GOLD</u> <i>time and location to come p. 1</i>	14 <u>9 am PES</u> <i>IEEE 141 Seminar USF Tampa p. 5</i>	15
16	17	18	19	20	21	22
23		25 <i>Merry Christmas!</i>	26 <i>Kwanzaa Begins</i>		28	29
30	31	1	2	3	4	5

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