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THE

SUNCOAST

SIGNAL

THE INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS, INC.



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This Month's Meetings

Tuesday, December 3: EXCOM Meeting

Meeting starts at 5:30PM At TECO Plaza

Register online at <http://time2meet.com/fwcs-excom/index.html>

Open to all FWCS Members

New Developments and Trends in the HVAC Industry

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FLORIDA WEST COAST SECTION**

CHAIR: Serge Beauzile (863) 834-6511 serge.beauzile@ieee.org

VICE CHAIR: Claude Pitts, cpitts7@tampabay.rr.com

SECRETARY: Sean Denny, venner20@ieee.org, 727-678-0183

TREASURER: Jim Howard, Lakeland Electric (863)834-6585
jhoward@ieee.org

SIGNAL EDITOR: Donna Howard, Serge Beauzile
Phone (813) 207-7966 dhoward@frcc.com

Serge.beauzile@ieee.org

AWARDS & BYLAWS : Richard Beatie, PE,
r.beatie@ieee.org

MEMBERSHIP: Jim Howard, Lakeland Electric (863)834-6585
jhoward@ieee.org

TEACHER IN-SERVICE: Sean Denny: Venner20@ieee.org
(727) 678-0183

PES/IAS CHAPTER: Serge Beauzile, Lakeland Electric,
(863) 834-6511 serge.beauzile@ieee.org

MTT/AP/ED CHAPTER: Jing Wang jingw@usf.edu

COMP/AESS CHAPTER: James S. Lumia (813) 832-3501,
jlumia@ieee.org

EMBS: Engineering in Medicine & Biology: John West: 727-743-
2267, john.west@ieee.org

ROBOTICS and AUTOMATION SOCIETY, Ken Fiallos,
ken@tampabay.rr.com

SP/COMM CHAPTER: Chris Lambrecht
chris.lambrecht@ieee.org

WIE: Women in Engineering: Valerie Tur, (813) 334-2317,
VLT4@cornell.edu

LIFE MEMBER AFFINITY GROUP: Glen Cock
gcock@tampabay.rr.com, 813-689-4765

GOLD: Victor, Basantes

PACE: Jim Anderson , (813) 425-2467
jim.anderson@ieee.org

STUDENT BRANCH CO-ADVISORS:
Dr. Paul Schnitzler, USF PS&A (813) 974-5584
pauls@eng.usf.edu
Dr. Andrew Hoff, hoff@usf.edu

STUDENT BRANCH MENTOR: Jim Howard, Lakeland Electric
(863) 834-6585 j.howard@ieee.org (H) (813) 876-1748

STUDENT BRANCHES:

Kenneth Almirol, kalmirol@mail.usf.edu

CONFERENCES: Richard Beatie, PE,
r.beatie@ieee.org

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

WEB MASTER: Claude Pitts, III, cpitts7@tampabay.rr.com

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Address all correspondence to:

Donna Howard
3133 W Paris Street
Tampa, FL 33614-5964
Home Phone 813-876-1748
E-MAIL: dhoward@frcc.com
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New Developments and Trends in the HVAC Industry

Hosted by Tampa Bay Trane

902 N. Himes Ave. – Tampa, FL 33609

(southwest corner of W. Cypress St, behind PIP Printing)

Date: Wednesday, January 22, 2014

Time: 11:00am – 1:00pm

Lunch will be provided

Cost: \$10 Members, \$20 non-members, \$ 5 Student Members

Make checks payable to IEEE FWCS and mail a check in advance to
IEEE PE/IA Chapter Treasurer: PES/IAS Chapter 2593 Forest Run
Court Clearwater, FL 33761-3716

Speakers: Mr. Sam Poolson, Mr. Joe Elovich, and Mr. Mike Leach

RSVP: Online at: <http://time2meet.com/fwcs-pes1/index.html>

Space limited to the first 25 registrants!!!

Questions: Ralph Fehr at r.fehr@ieee.org or 813-760-7204

The heating, ventilating, and air conditioning industry is undergoing continual advancements that impact all engineers and society in general. Come hear about some of the latest trends and technologies that have far-reaching implications. Topics to be addressed include Intelligent Energy Services (IES), new communication protocols – including wireless technologies – being used for HVAC controls, Earth Wise systems that meet Green and LEED criteria, and ice storage innovations.

About the speakers:

Mr. Sam Poolson serves as a Controls Engineer (Industrial and Commercial) for Tampa Bay Trane. He is a graduate of the University of South Florida (BSEE), and has experience as an electronics engineer, wireless engineer (U.S. FCC Licenced), and a journeyman electrician (AGC and State Apprenticeship Program, non-ticket). Mr. Poolson also served in the United States Marine Corps.

Mr. Joe Elovich serves as a Project Engineer for Tampa Bay Trane. He graduated with a (MA Management Sciences, BA Behavioral Psychology), and has 35 years experience in the energy management and control systems field, including HVAC design, electrical systems, process controls, and field experience. Mr. Elovich is a Certified Energy Manager, Certified Energy Auditor, and Certified Sustainability Development Professional, and served in the United States Air Force. He is a former president (5 years) of West Florida Association of Energy Engineers.

Mr. Mike Leach serves as a Sales Engineer for Tampa Bay Trane. He is a graduate of the University of Florida (BSME), and is LEED AP certified, and has extensive experience in the energy field. Mr. Leach also served in the United States Marine Corps.

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Innovation Featured in Latest IEEE-USA E-Books' Free Offerings to Members

WASHINGTON (31 October 2013) – IEEE-USA E-Books is offering “The Best of Today’s Engineer: On Innovation – Volume 1” free to IEEE members in November.

This compilation of some of IEEE-USA’s top stories on innovation looks at what it means, what it is, how to do it, what to think about, how to achieve it and how it might affect some aspect of engineering.

Volume 1 begins with an article from IEEE Life Fellow and former 3M Director of Engineering Gerard “Gus” Gaynor, “Innovation: What Engineers Need to Know.” In it he asks, what is innovation?; what are the sources of innovation?; is there a process for innovation?; what are the organizational requirements?; and who are the innovators? Gaynor stresses that the innovation framework includes an understanding of all these things.

Another featured article is “Roundtable Discussion – Engineers on Innovation: A View From the Roundtable,” by IEEE member Sean Lockhead, author of “The Balanced Engineer.”

Lockhead highlights four engineers’ thoughts on subjects like the definition of innovation, methods for developing new ideas and products, the team concept and key nontechnical attributes.

One respondent, discussing nontechnical skills, said, “It comes down to communication skills. Engineers must be salespeople too. An engineer can have all the technical knowledge, but without being able to communicate the ideas, it’s worth nothing.”

“The Best of Today’s Engineer: On Innovation – Volume 1” can be downloaded for free to IEEE members at <http://www.ieeeusa.org/communications/ebooks/files/a29j1wk0/Best-of-TE-Innovation.pdf>. The nonmember price is \$5.99

IEEE-USA’s Free E-Books to Members in December FREE E-BOOK

In December, Gus Gaynor’s book, “Doing Innovation: Creating Economic Value – Book 2: Developing a Workable Innovation Process,” will be available free to members in December.

Gaynor discusses the fundamentals of innovation; presents various models and their limitations; describes the innovation design process; considers the issues in developing a process model; suggests a generic model; and describes organizing for innovation.

To purchase IEEE members-only products, and to receive the member discount on eligible products, members must log in with their IEEE Web account.

CALL FOR AUTHORS

IEEE-USA E-books seek authors to write an e-book, or e-book series, on career guidance and development topics. If you have expertise in a particular area that you’re willing to share for the benefit of members, email your proposal to IEEE-USA Publishing Manager Georgia C. Stelluto (g.stelluto@ieee.org) and IEEE-USA E-Book Chair Gus Gaynor (g.gaynor@ieee.org).

IEEE-USA advances the public good and promotes the careers and public policy interests of more than 206,000 engineering, computing and technology professionals who are U.S. members of IEEE.

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Employment Opportunity

Hillsborough Community College

Plant City Campus

HCC's Plant City campus is actively looking for adjuncts to teach math. Can you spread the word through IEEE or Lakeland? They would like people who would be able to teach during the day. Adjuncts teach MAT 0018 and MAT 0028 (Pre- and Beginning Algebra) and if they have a Master's with 18 hours in math can teach college level courses.



Tour of Matheson TriGas

Date: Wednesday, December 12, 2013
Time: 2:00pm to 4:00pm
Speakers: Mathew Wendel
Location: Matheson TriGas, 2500 Combee Road Lakeland Florida
Cost: Free for Members, \$10 Non-Members.
RSVP: Online at: <http://time2meet.com/fwcs-pes2/index.html>

Make checks payable to: IEEE FWCS

Space limited to the first 15 registrants!!

Questions: Serge Beuzile at 863-834-6511 or serge.beuzile@lakelandelectric.com

Special Invitation for IEEE members to Learn about Air Separation System

Air separation is the most common process used to extract one or all of the main constituents of atmospheric air. The three main components are Nitrogen (78.1%), Oxygen (20.9%) and Argon (.9%). The remaining gases in the air are in trace amounts and normally not recovered. In very large air separation units (ASU) Neon, Xenon and Krypton are recovered in small amounts.

Cryogenic air separation utilizes the differing condensing/boiling points of the components of air to enable separation by distillation at cryogenic temperatures. At atmospheric pressure the main components of air have the following condensing/boiling points:

- Nitrogen -320F
- Oxygen -297F
- Argon -308F

Since air is a simple mixture, liquefying and distilling air provides a process to successfully separate the Nitrogen, Oxygen, and Argon.



IEEE Florida West Coast Section Louise & Thelma Wallace Foundation Student Scholarships

The IEEE Florida West Coast Section (FWCS) has received a donation from the **Louise and Thelma Wallace Foundation**. The Section will be offering 10 to 20 Student Scholarships from these funds. These scholarships will be between \$250 and \$500 each and will be based, in part, on the following. The student:

- Must be a current FWCS IEEE Student Member (i.e., attend college in the FWCS geographic area, have an IEEE Membership Number, be current on all dues payments, etc.)
- Must be a Junior or higher in an ABET accredited university
- Will receive credit for volunteer and community work (i.e., IEEE Volunteer, community volunteer, etc.)
- Should include in the submittal a write-up of the reasons you believe that you desire this scholarship (250 words maximum)

Watch future editions of the IEEE Signal newsletter for more details and where to submit your application.



Refer a Friend to Join IEEE

Complete the information below to refer a friend or colleague to join IEEE. They get a discount off their IEEE membership; you earn an IEEE-USA merchandise gift! Here's how it works:

- After you submit the form below, your referral receives an automated e-mail inviting them to join, including a \$25 discount off their first-year membership dues.
- When they join, they must indicate your member number as the referral source (this is how we track your eligibility for MGM awards as well as this special IEEE-USA merchandise offer).
- After they join, within 3-4 weeks, you will receive an e-mail confirming your recruiting success.
- Follow the link in that e-mail to pick out your IEEE-USA merchandise item! You will receive a separate e-mail for each successful new recruit.
- There is no limit to the number of merchandise items you can earn; as long as your referrals join as professional members (student referrals aren't eligible).
- Your referrals must join and complete payment prior to 31 December 2013.
- You remain eligible for the standard MGM incentive awards given out once per year in September.
- Society Affiliates are not eligible for this promotion.

The items you can choose from include:

- Cooler backpack
- Computer backpack
- Portable solar battery charger
- Tablet case
- Portable speaker
- Parker pen and mechanical pencil set
- Parker ballpoint pen
- Travel coffee mug and tumbler set
- Golf balls
- Baseball hat
- Golf umbrella
- Travel umbrella



Did You Miss It?

On Friday, October the 25th your PE/IA Chapter had another outstanding Seminar for our members. With over 40 attendees our Utility Battery seminar was a great success with an overall rating on our surveys of 4 out of 5. We appreciate Art Salander coming down to our Chapter and making this great presentation. Our appreciation also goes out to HindlePower for their support of this seminar.

Be sure to plan to attend our future Seminars.



IEEE FWCS SP/Comm Chapters

Phase Noise & Jitter Theory

Tied to Real World Applications & Measurement Techniques

Date: Tuesday, January 21st, 2014

Time: 2pm-5pm

Speakers: Mike Schnecker

The IEEE FWCS SP/Comm Chapter is preparing its first meeting for 2014. It will be on Tuesday evening January 21st. Mike Schnecker and Chris Leach from Rohde & Schwarz will give a presentation on phase noise and jitter theory tied to real world applications and measurement techniques.

More detailed information will follow via email and in the next Signal. The FWCS SP/Comm wishes a happy and safe holiday season to everyone. Looking forward to seeing you at our chapter meetings in 2014.

Organizer: For more specific information please contact Chris Lambrecht (e-mail: chris.lambrecht@ieee.org, Ph: (727) 458-9061)

Nanoparticle Both Kills Cancer Cells and Helps Image the Killing Process

By Dexter Johnson

Illustration: Guillermo Lobo/iStockphoto

Although real cancer killing nanoparticles look nothing like the fanciful robots pictured here, they're rapidly accumulating new capabilities.

The therapeutic capabilities of metallic nanoparticles continue to improve, [especially for cancer treatment](#). Along with their growing therapeutic abilities, they are also piling up diagnostic capabilities as well, like their recent use in enabling [iPod drug testing](#).

Now, thanks to researchers from the University of New South Wales in Australia, metallic nanoparticles have been [used to both treat cancer and observe the treatment](#). This latest development is part of the emerging field of so-called “[theranostic](#)” nanoparticles in which the nanoparticle is both a therapeutic and a diagnostic tool.



In a first, the Australian researchers, who published their work in the journal *ACS Nano* (“[Using Fluorescence Lifetime Imaging Microscopy to Monitor Theranostic Nanoparticle Uptake and Intracellular Doxorubicin Release](#)”), used a fluorescence imaging technique to see the release of a drug inside lung cancer cells.

“Usually, the drug release is determined using model experiments on the lab bench, but not in the cells,” said Professor Cyrille Boyer from the UNSW School of Chemical Engineering in a press release. “This is significant as it allows us to determine the kinetic movement of drug release in a true biological environment.”

The researchers were able to deliver the drug and watch it enter the cancer cells by using iron oxide nanoparticles that each had a polymer outer shell. The polymer shells were built so that they could attach to the drug doxorubicin (DOX) and then release the DOX in an acidic environment—inside the cancer cell. The iron oxide nanoparticles within the shell exploited the inherent fluorescence of the DOX by acting as contrast agents to make the fluorescence stand out.

Boyer expects that the iron oxide nanoparticles that they have developed will make it possible to adapt drug treatments to individual patients. “This is very important because it shows that bench chemistry is working inside the cells,” says Boyer. “The next step in the research is to move to in-vivo applications.”

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Or fax your address changes to (732) 562-5445

December 2013 Calendar of Events (For more information see P. 1) *inside this Signal...*

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2	3 <i>IEEE EXCOM TECO Plaza 5:30pm</i>	4	5	6	7
8	9	10	11	12 <i>Matheson TriGas Tour 2pm</i>	13	14
15	16	17	18	19 <i>PES/IAS EXCOM Village Inn 6am</i>	20	21
22	23	24	25 	26	27	28
29	30	31	1 	2	3	4