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October 2012

## **IEEE**

Inside This Signal...
Page 2

\* IEEE R3 Student Fall Leadership Training

\*USF IEEE Fall Picnic

Page 3

\* HSN Studio Tour.

\* Robotics and Automation Society

**Page 4**\*IEEE EMBS FWCS Event

Page 5

\* Member Appreciation Seminar

Page 6

\*NESC 2012 Update Seminar

Page 7

\*Engineering Your Finances: Secrets They Never Taught You

Page 8

\*Outlook and Challenges of Electrostatic Discharge Protection

Page 9

\*Advertising Section

Page 10

\*Calendar

This Month's Meetings

Tuesday, October 1: EXCOM Meeting
Meeting starts at 5:30PM At TECO Plaza
Register online at <a href="http://time2meet.com/fwcs-excom/index.html">http://time2meet.com/fwcs-excom/index.html</a>
Open to all FWCS Members

IEEE R3 Student Fall Leadership Training In Orlando

Details on page 2

Implantable Microsystems for Quantitative Measurement of Biomolecules for the Management of Hemorrhagic Shock

Details on page 4

Members Appreciation Seminar
IEEE Std. 1547 - Tour Lakeland Sun Edison Solar Plant
Friday, October 12, 2012- Lakeland Training Center

Details on page 5

NESC 2012 Update Seminar Friday, Nov 30, 2012 - FRCC Details on page 6

Engineering Your Future: Secrets They Never Taught You

Details on page 7

Outlook and Challenges of Electrostatic Discharge (ESD) Protection of Modern and Future Integrated Circuits

**Details on page 8** 

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## IEEE R3 Student Fall Leadership Training Orlando

So just exactly how does one go about running a student branch of the IEEE? It turns out that there is no big mystery here – it's actually pretty simple to do if you have the right people to show you how to do it. I've got some good news for you -- the IEEE regional student activities leadership is running a leadership training event in Orlando in October.

So what are you going to get out of attending this training session? The goal of the training is to provide more personalized interaction between the region leadership and the student branch officers than can be provided at the region wide leadership training. Student branch officers will leave these training sessions with a detailed plan of events for the following school year that has been reviewed by the region leadership. In addition, student branch officers will have an opportunity to interact with officers from other local student branches.

Sound like fun you say. So who's invited? The training is open for student officers, counselors and other interested students.

When: Saturday 6 October: Orlando, FL

Cost: There is a \$20 registration fee per participant.

If you are planning on attending, then you'll need to come prepared. Students need to bring 4 things:

- 1. An initial plan of events for the year (digital and paper copy please).
- 2. An initial budget for the year (digital and paper copy please)
- 3. A list of the student branch officers with contact information for at least two officers and the student branch counselor (online digital submission using a provided Google form)
- 4. A list of the student branch's goals for the year. This list should have 2 or 3 goals. (paper copy)

All of the information that you'll need along with an online sign up form is available online at: http://goo.gl/waFaY

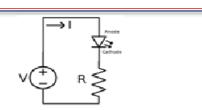


#### **USF IEEE Fall 2012 Picnic**

Where: USF Riverfront Park

When: Saturday, October 13th, 10:00am - 2:00pm

The USF IEEE Student Branch is hosting their semiannual picnic at the USF riverfront park, October 13th from 10:00am - 2:00pm. Come network with IEEE students and professors while enjoying activities and good food.



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#### **HSN Studio Tour**

Women in Engineering (WIE) will provide a tour of HSN Studios. Come see a 24/7 National Television Production Facility with State of the Art Control Rooms, Live Stages, Robotic Cameras and other Broadcast Equipment in action.

**Date:** Wednesday, November 14<sup>th</sup>, 2012

**Time:** 6:00 - 7:45 PM. Tour will begin at 6:30 PM.

Location: 1 HSN Drive (2501 118th Ave. N.) St

Petersburg

Speaker: Michelle Wilkins, VP of Broadcast

Engineering and Television Technology

**Cost:** \$10 Members, \$20 Non-Members

**RSVP:** Online at: <a href="http://time2meet.com/fwcs-meetings/">http://time2meet.com/fwcs-meetings/</a>

Make checks payable to IEEE FWCS

Send checks to:

John Stankowich, IEEE Vice Chair (WIE)

2953 Forest Run Court

Clearwater, Fl. 33761-3716

#### Space is limited to the first 14 registrants.

Attendee Registration closes on November 11<sup>th</sup> for security registration at HSN

Registered Attendees please go to main security guard gate from 6:00 to 6:20 PM for instructions to meeting room. Driver's License will be requested.

Questions: Valerie Tur – 813-334-2317 or VLT4@cornell.edu

**<b>PIEEE** 

## **Robotics and Automation Society**

The Tampa Bay Chapter of IEEE's Robotics and Automation Society held in first meeting at its new home, The Museum of Science and Industry in Tampa. The move to MOSI's just renovated Maker Space called the "Idea Zone" was made to better position the Chapter to execute on the Vision of the Chapter's Founder, George Schott to "Learn, Do, Teach". RAS Members, Jim Melton and Sean Denny explained to the attendees consisting of Teachers from Hillsborough and Pinellas County Public Schools, MOSI and Industry that RAS was partnering with students from the IEEE@USF, HCC Engineering Society and St Pete College to develop a mentoring pipeline of engineering students to help meet the needs of the K12 STEM Community.

RAS Chair, Ken Fiallos gave an update on the Chapter's two main Mission Initiatives:

- Improving Access to Robotics Education by establishing an independent 501(3)c Entity to develop autonomous BEST Robotics Hubs in IEEE FWCS's territory.

Ken gave a quick overview of the discussions being held with HCC to headquarter the new organization and with HCPS to establish the first template Hub to be called the North-South Hub (HCPS schools north and south of the I4 corridor). Ken also solicited for volunteers to attend the upcoming Emerald Coast BEST Hub Competition at UWF in Pensacola on 10/20/12 and the BEST Hub Training to be held on 11/30, 12/1, 12/1/12 at Auburn University

- Developing TISP STEM lesson plans around the Arduino Microcontroller.

Ken described two of the lesson plans; the Kinematics Tube and the Instrumentation of Electrathon Racers for Volts and Amps and Speed. RAS held a workshop on 8/15/12 to field test the Kinematics TISP plan and is another planned on 10/6/12 to field test the TISP Instrumentation plan at USF with its mentoring partners.

Lastly an overview of the RAS's new Project Management Software package, DotProject was previewed.



## **IEEE EMBS, Florida West Coast Section Event**

#### Implantable Microsystems for Quantitative Measurement of

#### Biomolecules for the Management of Hemorrhagic Shock

The FWCS EMBS Chapter is hosting a distinguished lecturer, Anthony Guiseppi-Elie, Sc.D, on October 16<sup>th</sup>, 2012.

Date: Tuesday evening, 16<sup>th</sup> of October 2012

Time: The meeting starts at 6:30 PM, presentation will start at 7 PM.

Location: USF Engineering II, ENB 110, 4202 East Fowler Avenue, Tampa

Please register at http://time2meet.com/fwcs-emb/index.html

We look forward to seeing you at the meeting!

John West

Chair, FWCS EMBS chapter

#### john.west@ieee.org

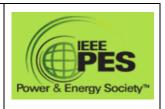
Abstract: Continued high morbidity and complications due to trauma related hemorrhage underscores the fact that our understanding of the detailed molecular events of trauma are inadequate to bring life-saving changes to practice. The current state of efficacy of trauma diagnostics concerning hemorrhage and hemorrhagic shock was considered with respect to vital signs and metabolic biomarkers. Tachycardia and hypotension are markers of hemorrhagic shock in decompensated trauma patients. Base deficit has been predicative of injury severity at hospital admission. Tissue oxygen saturation has been predicative of onset of multiple organ dysfunction syndrome. Blood potassium levels increase with onset of hemorrhagic shock. Lactate is a surrogate for tissue hypoxia and its clearance predicts mortality. Insulin resistance and attendant triage glucose measurements have been shown to be specific in predicting major injuries. No vital sign has yet to be proven effective as an independent predictor of trauma severity. Implantable point-of-care (POC) analytical microsystems are being developed for use by first responders to allow for rapid, continual monitoring of glucose and lactate via dual responsive amperometric enzyme biosensors, tissue acidosis via impedimetry and VO2 via voltammetry. Multianalyte monitoring biosensors have the potential to explore areas still unexplored in the realm of trauma physiology.

#### Bioprofile:

Anthony Guiseppi-Elie is Professor of Chemical and Biomolecular Engineering, Bioengineering, and Electrical and Computer Engineering. He is also Director of the Center for Bioelectronics, Biosensors and Biochips at Clemson University. He is Founder and Scientific Director of ABTECH Scientific, Inc., a near-patient biomedical diagnostics company. He holds the Sc.D. in materials science and engineering from MIT, the M.Sc. in chemical engineering from the University of Manchester Institute of Science and Technology (UMIST) and the B.Sc. (First Class Honors) with majors in Analytical and Applied Chemistry from the University of the West Indies (UWI). He has spent 15 years in industrial research and product development before becoming a full professor of Chemical and Life Science Engineering and of Emergency Medicine at VCU-MCV in 1998. His research interests are in engineered bioanalytical microsystems in the service of human health and medicine. He has published over 120 archival papers (2369 citations, h-factor = 26), 31 book or proceedings chapters, holds 8 patents, has given > 200 invited lectures/colloquia, and has co-organized and lead 30 national and international scientific workshops, symposia and conferences. He is an Associate Editor of Biomedical Microdevices and a member of the editorial boards of The Journal of Bioactive and Compatible Polymers, NanoBiotechnology, Applied Biochemistry and Biotechnology. Dr. Guiseppi is a Fellow of AIMBE, senior member of IEEE, a lifetime Member of AIChE and holds memberships in RSC, AAAS, ACS, MRS and BMES. At Clemson University Prof. Guiseppi teaches engineering materials, biological transport phenomena, biomolecular engineering, biosensors and bioelectronics, and nanobiotechnology.







## **Members Appreciation Seminar**

<u>IEEE Std. 1547 – Interconnection Guidelines and Future of Electric Power Industry and Applications Problems and Tour Lakeland SunEdison Solar Plant</u>

Date: Friday, October 12, 2012

Time: Seminar: Registration 08:30am-9:00am, Speaker 9:00am-2:00pm

Speaker: Dr. P.K. Sen, P.E., Professor of Engineering Site Director, Power Systems Eng. Research Center

Colorado School of Mines.

Keith Malmedal, P.E President NEI Electric Power Engineering, Inc. Arvada, CO

**Location:** Lakeland Training Center

Cost: No cost for IEEE Members, \$125 Non-Members. (Includes Lunch)

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

Make checks payable to: IEEE FWCS

Send checks to: John Stankowich, IEEE PES/IAS Treasurer

2593 Forest Run Court Clearwater, FL 33761-3716

Space limited to the first 50 registrants!!!

Cancellation must be submitted online 24 Hrs prior to the seminar at:

http://time2meet.com/fwcs-pes1/index.html

Questions: Serge Beauzile at 863-834-6511 or serge.beauzile@lakelandelectric.com

The proposed tutorial and workshop will provide a comprehensive review of the state-of-the-art status of all renewable energy sources, and describe the impact of renewable will make and provide application guidelines for the Electric Power Industry. The proposed tutorial will also address the effects of renewables and the government regulations, effect on the electricity market, national electrical grid, smart metering, and perhaps the future of how electricity will be delivered in the U.S. A tour of the Lakeland Sun Edison Solar Plant will take place in the afternoon.



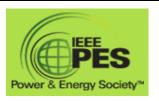
Dr. P.K. Sen, P.E. has over 46 years of combined teaching, research, and consulting engineering experience. He received his Ph.D. degree at the Technical University of Nova Scotia (Dalhousie University), Halifax, Nova Scotia, Canada in 1974. Prior to joining Colorado School of Mines, Dr. Sen taught for 21 years at the University of Colorado. His industrial experience includes power plants and substation engineering design, system & feasibility studies, protection and relaying and various aspects of power systems engineering applications. He is a Registered Professional Engineer in Colorado. Dr. Sen is a Professor and the Site Director for the Power Systems Engineering Research Center at Colorado School of Mines, Golden, Colorado. His current research interests include application problems in power systems engineering, electrical safety, renewable energy and distributed generation, energy policy and economics, power system engineering and engineering education. He has published over 130 technical papers and has supervised over 120 graduate students.

Keith Malmedal, P.E. received his MSEE (Electric Power) and MSCE degree (Structures), 1998 and 2002, respectively. He has a combined fifteen years of experience in power systems and structural engineering design, testing and commissioning that includes 500kV switching station, EHV large substations, 350 MW combined cycle unit, 500kV transmission line and industrial power systems. He is presently the President of NEI Electric Power Eng., Arvada, Colorado, specializing in all aspects of power system design. Mr. Malmedal is a Registered Professional Engineer (multiple states in both EE and CE) in 14 states. He is a very active member of the Denver section of IEEE PES/IAS Chapter. Keith has co-authored a number of papers presented and published in IEEE sponsored conferences, archival journals and magazines. Keith finished his PhD degree at Colorado School of Mines (May 2008) under the direction of Dr. Sen. His doctoral dissertation title is, "Distributed Generation and Renewable Energy Resources"

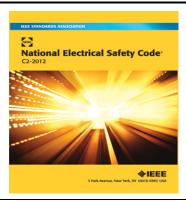
Connected to Existing U.S. Distribution Systems: Impact on System Design, Energy Policy Protection and Operation"







## NESC 2012 Update Seminar



**Date:** Friday, Nov 30, 2012

Time: Registration: 8:00am to 8:30am

Seminar: 8:30am to 1pm

Speaker: Thomas Blair, P.E., Senior Consulting Engineer,

Tampa Electric

Location: FRCC, West Tower, 1408 N. West shore - Suite 1002, Tampa

Cost: \$100 Members, \$200 Non-Members

PDH Credits: 4 professional development hours will be awarded. Be sure to enter your name and PE

number on the signup website as it appears on your license. IEEE Florida Provider

Number 3849.

RSVP: Online at: http://www.time2meet.com/fwcs-meetings/ (Select Reservations)

Make checks payable to: IEEE FWCS Treasurer, John Stankowich

Questions: Tom Blair at 813-228-1111, ext. 48179 or tom\_blair@ieee.org

PES West Coast Chapter invites you to the opportunity to attend a seminar on an update to National Electrical Safety Code (NESC-2012) on Friday, Nov 30, 2012. This standard became effective in January, 2012. This revision of the NESC provides updates to installation requirements for generation, transmission, and distribution installations and also provides updates to safe work practices at facilities covered by the NESC. While NESC is not law, it is one of the industry standards that OSHA may use to determine compliance with OSHA 1910.269 which is law, so it is critical that anyone who either designs or is involved in the maintenance of facilities covered by NESC learn about the updates provided by the NESC-2012 revision. The seminar is appropriate for degreed professionals, including engineers and engineering technicians, as well as non-degreed personnel with general knowledge of the NESC and experience in the electric utility industry. The standard is NOT included in the seminar but can be ordered online from IEEE. The website for more information on the code is at http://standards.ieee.org/about/nesc/2012.html.

The areas that received the most changes include the following;

Section 1 - Purpose and Scope, General Rules, and Application Section 9 - Grounding

Part 1 – Generation Stations - Part 2 – Overhead T&D Part 3 - Underground Lines

Part 4 - Work Rules

Attendance of a seminar on the latest code changes is a great way to ensure you comply with the latest technical advances in recommended electrical safe installation requirements and electrical safe work practices. Reserve a space for yourself today.

#### (Continued Next Page)

#### Speaker Biography

**Thomas Blair** is a Senior Consulting Engineer with Tampa Electric Company for over 10 years. Prior to his term at Tampa Electric, he was an engineer at Phasetronics/Motortronics for 10 years and prior to this served in the US Navy in the nuclear power area. Over his past 20 years' experience, Tom has designed and performed startup services for motor and drive applications. Tom has instructed "Energy Production Systems Engineering" and "Electric Machines and Drives" courses as an adjunct professor at the University of South Florida, Polytechnic. Tom received his B.S.E.E. and M.S.E.E. (Power Engineering) degrees from University of South Florida in 1991 and 2001 respectively and is a licensed Professional Engineer in the State of Florida (PE# 53239).



## Engineering Your Future: Secrets They Never Taught You

Hey smart engineer, I've got a good question for you. If interest rates rise, what will typically happen to bond prices: will they rise, fall, or stay the same?

If you don't know the answer, or more likely if you not 100% sure of what the answer is, then have I got the meeting that you need to be at. Your IEEE Florida West Coast Section PACE group is holding what just might be the most important meeting of your life – a personal finances tutorial.

Now this isn't going to be some boring in-one-ear-out-the-other university lecture. Rather, this 2 hour presentation is going to be broken up into three different parts – each part will be more valuable than the one that came before it! The first part is going to be an overview of all of those financial concepts that we should all know, but since we didn't get a business degree we might be a bit shaky on. We'll cover stocks, bonds, ETFs, risk, T-bills, 401(k)s, and income tax.

In the second part, we're going to talk about what you need to be doing today to prepare for life's big events. We're talking about losing your job, paying for college, paying for a wedding, or even buying a car. What's the right way to shell out all of that dough?

The final part of this presentation will focus on retirement. Since we all know that we're going to live to be 90+, what do we need to be doing today to make sure that we don't outlive our money? Would an annuity be a good idea? What's the deal with long-term care?

There will be nothing being sold during this presentation – it's going to be 100% information. The 3 presenters will be Dr. Jim Anderson and two financial planning experts who will be under strict orders to present and not sell.

It's your money! Can you think of a more valuable way to spend a couple of hours? Come, listen, learn, and ask your questions. Because I want to fill the room, I'm only going to charge you \$5 to attend the full meeting (\$15.00 for non-members). In the real world you'd be shelling out well over \$100 for this type of information -- if it was even available. This will be your ultimate no-pressure opportunity to get your questions answered and perhaps finally come up with a plan on how you are going to pay for everything that you are responsible for without taking on massive debt!

When: Wednesday, October 24th, 2012, 5:30 p.m. – 7:30 p.m.

Where: TECO Hall, 702 N Franklin St, Tampa, FL 33602-4429

Cost: \$5 for IEEE Members, \$15 for non-IEEE members

Online Registration: http://goo.gl/M3EZy









#### **IEEE MTT/AP/ED Florida West Coast Section Meeting:**

# Outlook and Challenges of Electrostatic Discharge (ESD) Protection of Modern and Future Integrated Circuits

<u>Speaker:</u> **Juin J. Liou**, Electron Device Society (EDS) Distinguished Lecturer, Pegasus Distinguished Professor at University of Central Florida, Chang Jiang Scholar Endowed Professor at Ministry of Education, International Honorary Chair Professor National Taipei University of Technology, Fellow of IEEE, Fellow of IET, Fellow of SIMTech.

Time: Wednesday October 10<sup>th</sup> 2012, 6:00PM – 7:30PM

Location: Room ENB109, Engineering II building, USF

Note: Pizzas and drinks will be provided with sponsorship by MTT society.



**ABSTRACT:** Electrostatic discharge (ESD) is one of the most prevalent threats to electronic components. It is an event in which a finite amount of charge is transferred from one object (i.e., human body) to the other (i.e., microchip). This process can result in a very high current passing through the microchip within a very short period of time, and more than 35% of chip damages can be attributed to such an event. As such, designing onchip ESD structures to protect integrated circuits against the ESD stress is a high priority in the semiconductor industry. The continuing scaling of CMOS technology makes the ESD-induced failures even more prominent, and one can predict with certainty that the availability of effective and robust ESD protection solutions will become a critical and essential component to the successful advancement and commercialization of the next-generation CMOS-based electronics.

An overview on the ESD sources, models, protection schemes, and testing will first be given in this talk. This is followed by presenting the challenges of designing and realizing ESD protection solutions for modern and next-generation integrated circuits.

#### **BIOGRAPHY:**

Juin J. Liou received the B.S. (honors), M.S., and Ph.D. degrees in electrical engineering from the University of Florida, Gainesville, in 1982, 1983, and 1987, respectively. In 1987, he joined the Department of Electrical and Computer Engineering at the University of Central Florida (UCF), Orlando, Florida where he is now the Pegasus Distinguished Professor and UCF-Analog Devices Fellow. His current research interests are Micro/nanoelectronics computer-aided design, RF device modeling and simulation, and electrostatic discharge (ESD) protection design and simulation.

Dr. Liou holds 7 U.S. patents (1 more filed and pending), and has published 9 books, more than 250 journal papers (including 16 invited articles), and more than 190 papers (including 81 keynote and invited papers) in international and national conference proceedings. He has been awarded more than \$10.0 million of research contracts and grants from federal agencies (i.e., NSF, DARPA, Navy, Air Force, NASA, NIST), state government, and industry (i.e., Semiconductor Research Corp., Intel Corp., Intersil Corp., Lucent Technologies, Alcatel Space, Conexant Systems, Texas Instruments, Fairchild Semiconductor, National Semiconductor, Analog Devices, Maxim, RF Micro Device, Lockheed Martin), and has held consulting positions with research laboratories and companies in the United States, China, Japan, Taiwan, and Singapore. In addition, Dr. Liou has served as a technical reviewer for various journals and publishers, general chair or technical program chair for a large number of international conferences, regional editor (in USA, Canada and South America) of the Microelectronics Reliability journal, and guest editor of 3 special issues in Microelectronics Reliability and Solid-State Electronics.

(Continued Next Page)

Dr. Liou received ten different awards on excellence in teaching and research from the University of Central Florida (UCF) and six different awards from the IEEE. Among them, he was awarded the UCF Pegasus Distinguished Professor (2009) - the highest honor bestowed to a faculty member at UCF, UCF Distinguished Researcher Award (four times: 1992, 1998, 2002, 2009) - the most of any faculty in the history of UCF, UCF Research Incentive Award (three times: 2000, 2005, 2010), UCF Trustee Chair Professor (2002), and IEEE Joseph M. Biedenbach Outstanding Engineering Educator Award in 2004 for his exemplary teaching, research, and international collaboration. His other honors are Fellow of IEEE, Fellow of IET, Fellow of Singapore Institute of Manufacturing Technology, Fellow of UCF-Analog Devices, Distinguished Lecturer of IEEE Electron Device Society (EDS), and Distinguished Lecturer of National Science Council. He holds several honorary professorships, including Chang Jiang Scholar Endowed Professor of Ministry of Education, China – the highest honorary professorship in China, NSVL Distinguished Professor of National Semiconductor Corp., USA, International Chair Professor, National Taipei University of Technology, Taiwan, Chang Gung Endowed Professor of Chang Gung University, Taiwan, Feng Chia Chair Professor of Feng Chia University, Taiwan, Chunhui Eminent Scholar of Peking University, China, Cao Guang-Biao Endowed Professor of Zhejiang University, China, Honorary Professor of Xidian University, China, Consultant Professor of Huazhong University of Science and Technology, China, and Courtesy Professor of Shanghai Jiao Tong University, China. Dr. Liou was a recipient of U.S. Air Force Fellowship Award and National University Singapore Fellowship Award.

Dr. Liou has served as the IEEE EDS Vice-President of Regions/Chapters, IEEE EDS Treasurer, IEEE EDS Finance Committee Chair, Member of IEEE EDS Board of Governors, and Member of IEEE EDS Educational Activities Committee.

Organizers: Jing Wang (e-mail: jingw@usf.edu, Ph: (813) 263-8445))

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

October 2012 Calendar of Events (For more information see P. 1) inside this Signal...

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
30	1	2 EXCOM Meeting at TECO Plaza, see page 1	3	4	5	6
7	8	9	10 MTT/ AP/ ED Electrostatic Discharge Protection, Pg 8	11	12 PES IEEE STD. 1547 see page 5	13
14	15	16 EMBS Implementable Microsystems see page 4	17	18	19	20
21	22	23	24 Engineering Your Future: Secrets They never Taught You see page 7	25 PES EXCOM Meeting at 6AM	26	27
28	29	30	31	1	2	3