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THE SUNCOAST SIGNAL

THE INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS, INC.

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September IEEE
Chapter Event



Adaptive IIR Notch Filters: Low Complexity Algorithms with Communication Application

Prof. Juan E. Cousseau
**2006 IEEE Signal Processing Society Distinguished
Lecturer**

Department of Electrical and Computer Engineering at
the Universidad Nacional del Sur (UNS), Bahia Blanca, Argentina

Date : Thursday, September 21, 2006 Cost: Free (RSVP required). Non-members
Time : 6:00 PM welcome. RSVP closer to September by
Location: University of South Florida visiting the FWCS homepage, click
Building/Room: see reservation site. Reservation tab.
Web: <http://ewh.ieee.org/r3/floridawc/>

Prof. Cousseau is author/co-author of more than 135 journal and conference papers in the field of signal processing and communications. He has been involved in scientific and industry projects with research groups and companies from Argentina, Brazil, Spain and USA. He has served as a technical consultant to Argentinean Government agencies in the areas of signal processing and communications. He is coordinator of the Signal Processing and Communication Laboratory (LaPSyC) at UNS. His research interests span the areas of statistical signal processing, and communication applications, with particular emphasis in linear and non linear techniques.

Parking is approximately \$3. Parking passes can be obtained immediately after entering the campus grounds on the right hand side. Please visit this link for a map showing visitor parking lots and the location of ENB 109 http://usfweb2.usf.edu/campus_map/.

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More info: contact Doug Chronister, dchronister@ieee.org

There are no special events in August so we have "futures" in this issue. Look at the interesting events in coming months and watch for more in the next months

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Editor's Column

It's been a quiet week at Lake Woebegon and August will be quiet too. But big things are coming: a Distinguished Lecturer for the SP/COM Chapter in September; the IAS Annual Meeting in October, and WAMICON in December. These are noteworthy both for the Section and our members. Put them on your calendars now along with the Celebrate Engineering Banquet in February 2007.

We note as well, the ongoing fine work being done on TISP (p. 3) and the team of women from USF who attended the IMS in San Francisco (pp. 4, 6).

Finally, if you know any teachers working in precollege programs related to engineering, let them in on the opportunity the IEEE offers for grants to support their work. This complements our own members' work in the TISP.

And in this summer weather, enjoy the sun, water and clean air but do it safely. —PS



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IEEE / IAS 41st Annual Meeting

The Industry Applications Society

October 8 - 12, 2006—Marriott Waterside Hotel—Tampa Florida

Greetings from the beautiful city on the bay!

Conference and Hotel *Advance* Registration rates available until August 31

We are open for business, register now!

60-plus Technical Sessions

Monday through Thursday

See the Preliminary Schedule on the web site

9 Continuing Education Opportunities (tutorials)

This conference is aimed to the Industry Applications oriented engineer and engineers in academia interested in this arena. It will be of interest to many Section members.

Meet engineers in your field from around the world.

See the web site www.ieee.org/ias2006



TISP News

An exercise on Ohm's Law was presented at Hillsborough County's Howard Blake High School on July 13, 2006. About ten educators were in attendance. Ralph Painter demonstrated the algebra and physics principles using voltmeters, batteries, and light bulbs. Tom Blair and Sean Denny help field questions and made sure the equipment worked. A debt of gratitude goes to Wing-Ying Kwong and Hillsborough County Science Supervisor of Secondary Schools Nancy Marsh who helped coordinate the event and were also present.

One of the suggestions was to add a page of related web links to the packets to help the teachers. Everyone was encouraged to visit the IEEE website, www.ieee.org/education/precollege, to submit feedback.

Plans for the next presentation are being formulated for Armwood High School on July 31st.



U.S. IT Infrastructure Not Adequately Prepared for Cyber Attacks, Says IEEE-USA

WASHINGTON (14 July 2006) -- Because our nation's information technology infrastructure is highly vulnerable to hackers, terrorists, organized crime syndicates and natural disasters, increased funding for cyber security research and development is needed, according to a recent position adopted by IEEE-USA.

"Because of society's complete reliance on information technology and cyber networks, all the critical infrastructures and networks are interdependent and interconnected," IEEE-USA stated. "A cyber attack on one sector's infrastructure may have devastating consequences to another sector. U.S. infrastructure is not adequately prepared to defend against such risks."

Nearly every aspect of life in the United States is tied to computers. Air traffic control systems, power grids, financial systems, public health records and military and intelligence cyber networks, among others, all depend on computer networks. According to IEEE-USA, core Internet protocols such as Internet routing, e-mail and end-user authentication are at risk of cyber attack.

To help mitigate the risk of attack, IEEE-USA recommends that Congress and the executive branch work with private industry to:

- Authorize and appropriate increased and stable funding for cyber security research
- Encourage and support cyber security technology transfer programs
- Facilitate commercialization
- Facilitate development and implementation of cyber security standards
- Support cyber security education programs

See the detailed position statement by linking to <http://www.ieeeusa.org/policy/positions/cybersecurity.asp>.

Contact: Chris McManes IEEE-USA Senior Public Relations Coordinator Phone: + 1 202 530-8356 E-Mail: c.mcmanes@ieee.org

IEEE-USA is an organizational unit of the Institute of Electrical and Electronics Engineers, Inc. created in 1973 to support the career and public policy interests of IEEE's U.S. members. IEEE-USA's mission as outlined in the IEEE Bylaws is to recommend policies and implement programs specifically intended to serve and benefit the members, the profession, and the public in the United States in appropriate professional areas of economic, ethical, legislative, social and technology policy concern. The vision is to serve the IEEE United States member by being the technical professional's best resource for achieving life long career vitality and by providing an effective voice on policies that promote U.S. prosperity.



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More pix from IMS-2006 with Diana Aristizabal, Suzette Presas, and Bojana Zivanovic and others (top; see p. 6.)



WAMI Center

IEEE Wireless and Microwave Technology Conference “WAMICON 2006”

December 4 & 5, 2006—Marriott Suites Sand Key—Clearwater, FL

Invitation to Exhibit & Join Conference Sponsorship List

The 8th annual IEEE Wireless and Microwave Technology (WAMI) Conference will be held at beautiful Sand Key beach in Clearwater, FL on December 4-5, 2006. The conference will address up-to-date multidisciplinary research needs and interdisciplinary aspects of wireless and RF technology. The program includes oral presentations, poster presentations, workshops, and tutorials.

The steering committee would like to invite your company to become an exhibitor and/or sponsor of this exciting and high profile event. We can accommodate a limited number of 10' x 10' “pop-up” and table-top displays. The following options and sponsorship opportunities are offered:

	Event Dates	Sponsorship Level
Dinner	12/4	\$3000 (or 2 @\$1500)
Reception / Poster Session	12/4	\$1500*
Lunches	12/4 & 12/5	\$1250 each day
AM&PM Break Sponsors	12/4 & 12/5	\$550 each break
Meeting Rooms & A/V	12/4 & 12/5	\$350 per day
Exhibit Booth Space (~8x 10)	12/4 & 12/5	\$650
6 ' Table Top Display	12/4 & 12/5	\$450
General Sponsorship	12/4 & 12/5	\$350

Sponsors at the \$1000 level and above will receive a complimentary table-top exhibit space upon request. Exhibit space is limited; our suggestion is to reserve your space soon. Please email Alen Fejzuli afejzuli@rflabs.com and cc: Larry Dunleavy at l.dunleavy@ieee.org with your exhibit plans and requirements.

Booths will be reserved on a first paid/first served basis, please select 3 choices for exhibit location (contact Fejzuli or Dunleavy). Make checks payable to “IEEE WAMICON” and send to Attn: Ms. Gayla Montgomery, University of South Florida, 4202 E. Fowler Ave, ENB 118, Tampa, FL 33620. For credit card payment contact Alen Fejzuli for the form.

All sponsors and exhibitors will be acknowledged in multiple ways including on the conference website, on signs at conference events, and in other printed and electronic promotions and digests associated with the event. For a list of 2005 sponsors please see <http://ee.eng.usf.edu/WAMI/conferences/2005/sponsors-05.html>

Please, don't forget to register for the conference. Go to www.wamicon.org for more information as well as Conference Registration and Hotel Information:



Plan Ahead: Mark Your Calendar For The 2007 Celebrate Engineering Banquet!

The 7th annual Celebrate Engineering Banquet will be held at the Wyndham Westshore hotel on Friday, February 16th, 2007. (It's closer than you think!) 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 Alliance's 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.

Mark your calendars for February 16th, 2007 and we'll see you at the Celebrate Engineering Banquet! —JA



FWCS Women Engineers at IMS-2006 in San Francisco, CA

The International Microwave Symposium, IMS-2006, was an excellent opportunity for three IEEE students to represent the University of South Florida by attending such a distinguished conference that took place in San Francisco, CA from June 9th through June 16th. The students attended workshops, panel discussions, and technical sessions where they were able to learn about the latest research in the microwave field. They also had the opportunity of showing support for several USF student peers from the Wireless and Microwave program that were presenting technical papers on RF-MEMS technology, coaxial transmission lines research, and W-Band signal generation.

They were able to compare the research being conducted by the WAMI program at USF to research being done by other experts in this field and were pleased to realize that their program stands strong by leading some of the cutting edge research currently being done.

While attending this conference, they were inspired by the efforts of other women in Electrical Engineering to increase the number of women engineers in this field. In some instances during the conference, they faced the harsh reality of some of the views towards women engineers. Still a minority in the field, they realized that there is still a lot of work to be done to raise awareness of the potential and work being done by women engineers.

Finally, networking allowed them to meet with representatives from microwave related companies. For them, IMS 2006 was definitely a great experience, where they were able to interact with leaders from academia and industry as well as fellow students. They were also excited to report that Tampa, competing against Denver and Philadelphia, will host IMS 2014.



Bojana Zivanovic, Suzette Presas, and Diana Aristizabal.

(Advertisement)

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Brain Teaser Challenge Column

—By Butch Shadwell

July BTC Last month's discussion of doughnuts lead us to the following question, "If a toroid is circular with an outside diameter of 5 cm and has a circular cross section that is 1 cm in diameter, what is the total volume inside of the toroid?"

At the time I am writing this, I have already received a number of correct and incorrect answers to this problem. Some folks chose to approach this problem using integral calculus, but I generally like to take a more simple method where possible.

I decided that the volume of the toroid could be calculated as the volume of a cylinder, if you can imagine straightening the thing out. For a cylinder the volume equals the area of the cross-section times the length of the cylinder. I imagined sectioning the toroid based on equal angular displacements around the circumference. These little pieces of toroid are smaller toward the center of the toroid and bigger toward the outside edge. Now if we rotate the flat faces of this section around the centerlines, so that the small end gets bigger and the big end gets smaller, it become evident that the length of the cylinder will be the circumference of the mid-line of the toroid. So, we get an equation for the volume of the toroid = $(2\pi)(R_i+R_o)/2 * (\pi(R_s)^2)$, where R_i is the inside radius of the toroid, R_o is the outside radius, and R_s is the radius of the cross-section. After substitution this reduces to π^2 , or 9.87 cm^3 . But I bet you already knew that.

July BTC My friends know that I am a semi-professional actor. By semi-professional I mean that not all of my acting gigs are for money, to my agent's chagrin. It is not uncommon that during rehearsal, or back stage between scenes, I engage my fellow actors in stimulating discussions of math and science. I am continually amazed at the number of actors I meet with college degrees in these fields. It must be a common choice for a fall-back career, in case the engineering thing doesn't work out.

My next show is going to be a musical, "The Pirates of Penzance". I will be one of the singing policemen. I'm planning to have the whole cast bring their calculators to rehearsals so we can work problems when we are not learning our songs. They seem quite excited at the prospect. Not wanting to disappoint them, now I have to come up with some interesting problems. How about:

We have a 2 input Exclusive Or gate with an integrator on the output, being used as a phase detector. It generates an output voltage from 0 to 5 vdc as the phase changes over 180 degrees. One input of this gate is fed from a very stable local oscillator generating a 1 MHz squarewave.

There is a similar function generator at a remote location transmitting over an RF carrier. The other input of our phase detector is looking at the output of a radio receiver

Precollege Education Committee Teacher Grant Program

By Mark McKeage, Mark.McKeage@pgnmail.com

Promoting Novel Ideas to Introduce Engineering to Precollege Students: How Teachers Can Win a \$1,500 IEEE-USA Grant

IEEE-USA's Precollege Education Committee's Precollege Teacher Grant Program awards grants to teachers to sponsor innovation and creativity in or outside of the classroom. The Grants provide small amounts of funding up to a maximum of \$1,500 for novel ideas that introduce engineering to students.

Grant Requirements:

The program/project must be a new and/or unique idea*

The program/project must take place in 2006†

The teacher must work with an IEEE member (the IEEE member can be a partner, mentor, or a resource member)

* Note: The purpose of the PEC Teacher Grants is to fund unique and new ideas/projects/programs/products. Grants will not be provided for pre-existing or "canned" projects such as FIRST Robotics Competitions, BEST Competitions, and Project Lead the Way implementation unless it is an IEEE program such as implementation of an IEEE Teacher In-Service Program. Grants will also not be provided for capital goods such as laptops, video recorders, etc.

† Note: There is no specific deadline to apply for a grant. Approval is on a rolling basis. However, the teacher should apply before the completion of the project.

Grants will be awarded based on:

Innovation	Shared results, outcomes
Creativity	Science, Technology,
Widespread classroom applicability	Engineering,
Engineering collaboration	Mathematics (STEM) content, application

Get the application form in MS Word from: <http://www.ieeeusa.org/volunteers/committees/pec/resources/PEC-tg-form.doc>



picking up this remote squarewave. If we observe a change in the output voltage of the phase detector of 1 vdc, what is the change in distance between the transmitter and receiver that would account for this voltage change? If this problem makes sense to you, you may want to consider an acting career too.

Reply to Butch Shadwell at b.shadwell@ieee.org (email), 904-223-4510 (fax), 904-223-4465 (v), 3308 Queen Palm Dr., Jacksonville, FL 32250-2328

August 2006 Calendar of Events (For more information see P. 1 *Inside this Signal...*)

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
30	31	1 <i>5:30 pm:</i> <i>IEEE FWCS</i> <i>ExCom TECO</i> <i>Tampa</i>	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17,	18	19
20	21	24	23	24	25	26
27	28	29	30	31	1	2
<div style="border: 2px solid black; padding: 5px; background-color: #e0f7fa;"> As this is a quiet month, start thinking about the IEEE/IAS Annual Meeting in October (page 3) and WAMICON 2006 in December (page 5). </div>						

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IEEE/IAS Annual Meeting Oct. 2006 Tampa!

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