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**THE  
SUNCOAST  
SIGNAL**

*THE INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS, INC.*

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***IEEE / IAS 41st Annual Meeting  
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***60-plus Technical Sessions***

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***Conference and Hotel Registrations  
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See the web site [www.ieee.org/ias2006](http://www.ieee.org/ias2006)



And also in October:

***PL-UG Fest 2006 at Clearwater FL—p. 5***

***MPAC-WIE at BWI Airport MD—p. 5***

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## Editor's Column—Vote

It's that time of year, the **IEEE elections** are here. Your officers represent your interests as professional engineers. As the largest engineering organization, we have a lot of clout. There are many issues about which many of us are concerned—salaries, outsourcing, education, H-1B visas—to name but a few.

There was a bit of a hiccup in the printing of the ballots; see page 4 for details and how you must manage it to be sure your vote is counted.

Also see the note below on **Spam Filtering** if you use your IEEE alias (e.g. mine is [paulschn@ieee.org](mailto:paulschn@ieee.org) ) This professional alias is one of your benefits of membership.

And a last point: The **IEEE Student Chapter Picnic** will be Saturday October 7th at 10am-2pm at USF River Front Park. It is open to all and it has been great fun in the past. Contact Jon Wells at [jdwells2@mail.usf.edu](mailto:jdwells2@mail.usf.edu) for more info. Think *souvlaki* and hamburgers, volley ball and Frisbee. Also Canoeing with the 'gaters... —PS



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## Free Spam Filtering Service

As an IEEE Email Alias user, you are entitled to add the free UCE (unsolicited commercial email) / spam filtering service to your account. This opt-in service is designed to help you manage the amount of UCE/spam you receive. It allows you to select either blocking or tagging options. You can set it up quickly and easily by going to <https://uce.ieee.org/>.

The IEEE Email Alias service, with virus protection and the optional spam filtering is a benefit of your membership. We encourage you to take full advantage of this service.

For more information, contact [uce-admin@ieee.org](mailto:uce-admin@ieee.org) .



**IEEE WAMI Center**



***Eighth Annual  
IEEE WIRELESS AND MICROWAVE TECHNOLOGY  
An IEEE Industry/Government/Education Conference  
December 4 and 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, and tutorials. (To register or for more info visit <http://wamicon.eng.usf.edu/> )

**Highlights:**

**Keynote Speaker: Dr. Kumar Balachandran**, Ericsson Research, RTP, NC, USA will present a talk tentatively entitled "Where is the cellular mobile radio going?—Perspectives on 4G."

**Tutorials:** On December 4 there are four tutorials planned; admission is included with the general registration. Presenters will include:

- Dr. Ed Callaway, Motorola Labs, "Wireless Sensor Networks"
- Dr. Tom Willis of AT&T Labs, "WiMax Technology"

**Invited Talks:** Among the planned invited papers at this year's conference will be:

- Achievements of European Research Cooperation on Microwave Amplifiers in the TARGET Network (G. Magerl and T. J. Brazil)
- Volterra-Based Behavioral Modeling of Power."

**Topics of interest include (but are not limited to):**

- Next Generation (3G/4G) wireless communication systems
- 802.11/HiperLAN2 Wireless LAN Systems (OFDM and multi-carrier)
- 802.16/WiMax Wireless Metropolitan Area Networks and related technologies
- Spread spectrum wireless systems
- Communications in disaster/emergency/rescue
- Smart antennas, adaptive antenna arrays, MIMO, and space-time processing
- Cognitive radio, Software Radio, and Emerging Technologies
- Ultrawideband (UWB) Communication: Applications, system and RF issues
- Wireless Sensors Networks and Ad Hoc Networks
- Telemetry and telemedicine application of wireless devices and systems
- Advanced propagation modeling and sounding of communication channels
- Cross-layer designs, integration of the physical layer technologies with other layers
- System Architecture, Integration, and Convergence Issues
- System Level Design, Modeling, and Simulation
- RF channel characterization and modeling
- Front-end subsystems; Low-Power RFIC and System-On-Chip Solutions
- Power Amplifiers, Linearization and Active Components, incl. NL transistor modeling
- Advanced wireless and microwave circuit design and packaging , including RF MEMS
- Base station and handheld antenna technologies, design and measurement
- RF/Microwave measurement techniques



***PES/IAS Events***

Watch for tours and seminars on protective relaying applications and motor and motor control theory and applications. They will be combined with factory tours of Beckwith Electric factory and Tampa Armature Works Motor shop respectively.

***Employment Opportunity***

Think you can sell? Opening for a EE or ME with a solid HV transformer/switchgear background. Call on electric utilities and OEMs. Powers and Company, Inc. is a manufacturers' representative firm. Send your resume and letter of interest to Dick Powers, P. O. Box 10458, Tampa, FL 33679-0458.

# Open Letter: Critical IEEE Ballot Notice



You have probably already received your individual ballot materials for the 2006 IEEE Annual Election. I am writing to alert you that an error on the printed ballots for the IEEE-USA categories inadvertently reversed the candidates for IEEE-USA President-Elect and IEEE-USA Member-at-Large. To correct this, we are sending all eligible voting members in Regions 1-6 a second paper ballot that covers the IEEE-USA slates of office only. This ballot includes a notice on the envelope to help you identify it and an explanation and instructions inside. I urge you to watch for both of these mailings.

Please do not discard the initial ballot as we are asking you to return both ballots if you submit them by U.S. mail. If you submit your ballot electronically, this change does not apply. All ballot materials accessed via the election Web sites at <http://www.ieee.org/elections> or <https://www.directvote.net/ieee/> are correct.

For members who are submitting ballots by U.S. mail, both ballots are required for the following reasons:

- To ensure your votes will be recorded in all categories since votes for the two IEEE-USA positions on the initial paper ballot will be invalidated.
- If you do not also submit the initial ballot, you will not be voting in all of the other categories for which you are eligible.
- Please note that if you submit only one of the paper ballots, you will be contacted by the vendor and urged to cast the other ballot.

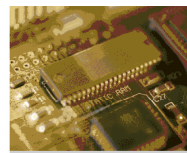
The opportunity to vote in the IEEE Annual Election is a privilege of your membership, and your vote is important to the IEEE. I encourage you to learn as much as you can about the candidates and participate in the annual election when you receive your ballot materials. Additional information about the candidates including video question and answer sessions with the IEEE President-Elect candidates, and links to many candidates Web sites, is also available from the annual election Web site.

I am very sorry for any inconvenience to our members and our candidates caused by the necessity to send you two paper ballots this year. Please remember to return both forms if you submit your ballot by U.S. mail or, instead, submit your ballot electronically.

If you have any questions, please contact [corp-election@ieee.org](mailto:corp-election@ieee.org).

I thank you in advance for your understanding and your help in enabling the IEEE to have a successful 2006 election.

Sincerely, Michael Lightner, IEEE President and CEO



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**BTC Cont.** — a sly grin on your face, ask if he or she has “ever tried to drive an LCD glass directly with the output from a microcontroller?” This question always raises curiosity as they wonder, “What is an LCD?” or “He must be asking me this question because there is something unique about LCDs.” Or “Why is this person talking to me, and with food littering their smile?” Regardless of which of the above runs through their mind, be ready with a clear description of how driving an LCD poses problems not present with LEDs and incandescent displays. Of course I’ve been married for over 32 years now, and have never had to resort to clever repartee to get a date, but I have given it a lot of thought and significant mathematical analysis, and I am pretty sure this can work for you. If you’re not sure what is unique about LCDs, read the answer next week.

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



## **IEEE★USA** *IEEE-USA Congressional Fellows – Hard at Work for YOU!*

Every year, IEEE-USA sponsors three government fellows – two on Capitol Hill and one at the U.S. Department of State. The application process begins in the late fall when we begin to solicit interested IEEE members via an advertisement in *Spectrum* magazine as well as ads and articles that appear in various section publications. Information about fellowship opportunities is also disseminated at the annual IEEE-USA Leadership Conference and through staff presentations at section meetings around the U.S. Following the mid-February application deadline, the IEEE-USA Government Fellows Committee – five IEEE members chosen by the IEEE-USA board based upon their public policy experience and commitment to IEEE – convenes to select the candidates who will be asked to interview in-person, in Washington. The interviews occur in mid-May and future fellows are notified of their selection almost immediately. For more information on the application process as well as candidate qualification requirements and copies of the application forms, please visit: <http://ieeusa.org/policy/govfel/default.asp>

The 2006 fellows, discussed below, will complete their fellowships in December. We welcome three new fellows to the program in January 2007. The 2007 fellows are Monica Mallini and George Hanover, both of Virginia, and William Behn of California.

1) Steve Bonk has been an IEEE member since 1977, and a senior member since 2002. A resident of Maryland, Steve has been serving as a 2006 IEEE-USA congressional fellow in Congressman Dana Rohrabacher's (R-Calif.) office while on a leave of absence from his technical planning manager position at SAIC. As a fellow, Steve has been working mostly on science oriented issues. Additionally, he has worked on some energy initiatives, the largest being an investigation of high temperature helium gas nuclear reactor technology.

While working as a fellow, Steve has also been able to take advantage of one of the perks available to legislative staff, travel. He reports, "I had a trip to California and the [Rohrabacher's] district... I went up the coast for a middle of the night launch of the Cloudsat and Calypso satellites at Vandenberg Air Force Base; these were on a Delta II launch vehicle, which is managed by Boeing in the district. In the San Diego area I visited General Atomics to go over a high temperature helium gas reactor design, view a prototype maglev for potential applications in easing the congestion out of the Los Angeles and Long Beach ports, and saw their DIII-D fusion Tokomak."

Having engineers represented in Congress also provides us with a view of the very un-technical workings of Congress. Steve also reports the lack of automation in the day to day operations of Congress. Dropping a bill into the coffer – the actual act of introducing a bill to the full chamber - is a long standing tradition that technological advancements have not changed. Steve says, "Submitting a bill is ... a non-automated process, which involves dropping the bill in a wooden box on the House floor."

2) Professor Scott Jordan, a 16-year member of IEEE, teaches EE and computer science at the University of California – Irvine. He has been working on internet and telecommunication issues for Senator Ben Nelson (D-NE). More specifically, Scott is working on Congress' attempts at telecom reform. H.R. 5252, a telecom bill passed by the House and sent to the Senate, entails more than 10 different topics including video franchising, universal service, and network neutrality. H.R. 5252 passed the Senate Commerce Committee and may be considered by the full Senate this fall.



Left to right your Congressional Fellows are: Steve Bonk, Steve Czchlewski and Scott Jordan

In addition to telecom reform, Scott is spending a portion of his time working on education issues related to the National Competitiveness Investment Act. The bill, focused on increasing US competitiveness in STEM (Science, Technology, Engineering, and Mathematics) fields, has two principal goals: (1) to increase funding of STEM basic research through NSF, DOE, NASA, and NIST, and (2) to increase the number of STEM students. Portions of the bill have been considered by the Commerce and Energy committees, and the bill may also be considered by the full Senate this fall.

—Cont. IEEE-USA p. 6

—IEEE-USA

3) Steve Czuchlewski, a physicist and IEEE member since 1978, is serving as the IEEE-USA State Department Fellow for 2006. Steve is a guest scientist on leave from Los Alamos National Laboratories. Much of what Steve works on as a fellow is classified, but we can tell you that he has worked on six different nonproliferation programs. Steve reports that he is, “very impressed with the expertise and commitment of the State Department and other government agency (DOE, Pentagon, NSC, etc) staff,” and he, “strongly encourage technical people to become involved in government policy-making.”

As a final note for the article, many of should remember we had one of the FWCS members serve as an IEEE-USA Congressional Fellow—It was Al Rosenheck, former Chairman of the FWCS. If you would be interested in serving as an IEEE-USA Congressional Fellow, please contact either Jim Howard ([j.howard@ieee.org](mailto:j.howard@ieee.org)), or Jim Beall ([j.beall@ieee.org](mailto:j.beall@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.



## *PE/IA Chapter Seeking Volunteers*

The Power Engineering Society/Industry Applications Society joint Chapter of the FWCS is looking for volunteers willing to give of their time, knowledge and energy to serve as an Officer of the Chapter. We are also looking for volunteers to assist in setting up meetings and seminars and to provide general guidance to the Chapter. If you are interested in helping as an Officer, or other volunteer, please contact either Jim Howard ([j.howard@ieee.org](mailto:j.howard@ieee.org)), or Jim Beall ([j.beall@ieee.org](mailto:j.beall@ieee.org)) and let them know of your availability.



## *Nominations for FWCS Officers and Other Positions Being Accepted.*

It is that time of year again when we are looking for volunteers to fill the many positions we have here at the FWCS for our Executive Committee.

Your Nominating Committee consists of Jim Beall, Richard Beatie, and Jim Howard, and they are always on the look-out for volunteers to help with the operations of the FWCS.

At this time of year, by our By-Laws, we will be electing our key officers. This will occur at the December Section meeting. Once we have these officers elected, the Exec will pass a motion, presented by the Chair and the Nominating Committee, to fill the many Committee positions with Chairs and Vice-Chairs. We are very pleased to have several volunteers who have already come forward and offered to fill some of these very important positions, but we are always on the look-out for more. If you are interested in helping YOUR Section by giving of your time and knowledge, to work with on one of these Committees, please contact Jim Howard ([j.howard@ieee.org](mailto:j.howard@ieee.org)), Jim Beall ([j.beall@ieee.org](mailto:j.beall@ieee.org)), or Richard Beatie ([r.beatie@ieee.org](mailto:r.beatie@ieee.org)), and let them know of your interest and availability.

The positions that will be filled include, but are not limited to the following:

Chair	Publicity Committee
Vice-Chair	PACE Committee
Treasurer	GOLD Committee
Secretary	Web Master
Education Committee	Teacher-In-Service Committee
Student Branch Mentor	Life Member Committee
ByLaws Committee	Signal Editor
Awards Committee	Membership Committee

As you can imagine, not only do we need leaders for these committees, but we need additional volunteers to serve on the committees in various positions, so please let us know if you are available to assist.



*FWCS Computer Society, AESS and PL-UG Present*

***PL-UG Fest 2006***

**FREE ADMISSION, BREAKFAST AND LUNCH**

**October 26<sup>th</sup>, 2006, 8 A.M. – 5 P.M.**

**Holiday Inn, Clearwater, FL**

**3535 Ulmerton Road**

The Programmable Logic Users Group (PL-UG) is hosting its fifth annual programmable logic conference. This programmable logic technology event is a day of presentations and vendor shows for designers and users of FPGA, CPLD and other programmable devices. This year's presentation topics include the latest in design techniques, debug and test, silicon and tools from each of the major programmable suppliers, and third party providers. In addition to these traditional programmable logic topics, this year's event will include presentations on hard and soft processing cores, DSP solutions, high speed serial and parallel IO interfacing, Linux, and other special or advanced topics associated with programmable logic solutions. This year's event will cover the latest solutions for the following:

- |                             |  |
|-----------------------------|--|
| <b>Silicon</b>              | <b>Design techniques</b>                 |
| <b>Test and debug</b>       | <b>High Speed parallel and serial IO</b> |
| <b>Processors and Linux</b> | <b>Digital Signal Processing</b>         |

**RSVP**

**Attendees:** For registration and details for this event please register on-line at <http://time2meet.com/fwcs-meetings/> under CS/AESS Chapter Meetings or contact Ben Harding at 727-510-5325, or by email [ben.harding@avnet.com](mailto:ben.harding@avnet.com).

**Vendors:** To reserve a table or obtain a presentation slot, contact Ben Harding at 727-510-5325, or by email [ben.harding@avnet.com](mailto:ben.harding@avnet.com).



**IEEE Women  
in Engineering**  
[www.ieee.org/women](http://www.ieee.org/women)

***2006 IEEE MPAC-WIE  
"Meeting the Challenges of  
the 21st Century Engineer"***



Embassy Suites Hotel at BWI

Being held at the BWI Airport (MD) October 14 – 15, 2006

Register for the conference at

[www.baltimorebwiairport.embassysuites.com](http://www.baltimorebwiairport.embassysuites.com) <https://icm3.ieee.org/eventmanager/onlineregistration.asp?eventcode=JOL>

Some activities and presentations

- Tour of Historical Electronics Museum
- Welcome and Keynote Speaker "Skills for Working in Today's Competitive World in the Telecomm Environment"
- Keynote Speaker: Celia Desmond, World Class Telecommunications; VP IEEE Technical Activities; VP Member Relations of the IEEE Eng. Mgmt. Society

- Other topics: Conquering Challenges of Graduate School
- Are You Ready to Start an IEEE WIE Affinity Group?
- Securing the Nation: The Need for a Systems Approach
- Gender and Diversity in 21st Century Engineering
- Starting a Small Business
- Business and Economic Development
- ...and much more

## *Our Profession And Community— Why Me?*

The SIGNAL's last issue on page 6 presented this academic year's "YES! – We Care!" activities to reach K – 12 grade students who may have the potential to become future STEP (Science, Technology and Engineering Profession) members. The program focuses on assuring that everyone of school age who has STEP potential for, and/or interest in these career fields can learn more about it. This goal is met in two phases:

1. Phase 1 (which is new this year) provides lectures by practicing engineers in an "Engineering Club" setting to interested K to 12<sup>th</sup> Grade students (and interested parents).
2. Phase 2 (which is in its 25<sup>th</sup> year) handles Saturday morning teacher-directed local, regional and nationally oriented projects. This program expects students to focus their academic studies on STEM (Science, Technology, Engineering and Mathematics). Currently this program operates in South Pinellas and is fully subscribed.

What follows addresses this year's Needs/Plans, Lecture-Topics/Speakers, Location/Time, "Others" for Phase 1, the "Engineering Club" Lecture program

1. Data since 1985 shows that the U.S. is no longer creating the **needed** new STEP professionals to maintain our economical and technological lead among future nations. To reach this goal of **needed** STEM-competent professionals calls for more K=12 students aiming at this for their #1 future career. To become motivated they have to learn that STEP professionals enjoy their careers. Professional engineers speaking to students can do this, school systems cannot. That's why some of you are needed!
2. Speakers from a wide variety of Professional Societies (like IEEE!) will cover the wide range of STEP. Presentations should be interesting and "applied" (practical). Demonstrations are welcome. Time for talking depends on level (grade range) of the audience.
3. Plans call for starting this program in Pinellas; (Note that K-12 schooling is county-based). The Clearwater Campus of St. Petersburg College will be the "home base" for the "Engineering Club". Length of Talks shall be gauged to the audience; A comparable effort may be the Great American Teach-In (GATI). (Please note that if you are participating in GATI, you will be almost ready for joining this program). Times for lectures are expected to be either on Saturday mornings or after school during the week.
4. Like other IEEE activities, we are dependent on volunteers to conduct this program. Even though we know that none of you are ready to firmly commit

## *Mark Your Calendar Celebrate Engineering Banquet 2007*

An open letter to CEB 2006 Attendees (and the rest of us)

We of the Celebrate Engineering team hope you enjoyed the CEB 2006 banquet. It was a huge success and in 2007 we are looking to outdo ourselves! I invite you to once again be a part of this premier annual engineering event in the Tampa / St. Petersburg area.



The Florida West Coast Engineering Alliance will be holding its 7th annual "Celebrate Engineering" Awards Banquet (CEB) on February 16, 2007 at the Wyndham Westshore Hotel in Tampa. Mark your calendar.

CEB 2007 will be a wonderful networking event bringing together local leaders and engineering professionals to recognize the outstanding achievements of Engineers, Science & Math Teachers and Students in our community.

You can check on the latest details and even register for this event at this website:

<http://ewh.ieee.org/r3/floridawc/celebrate/>

I'll look forward to seeing you there!

David Figueroa, 2007 CELEBRATE ENGINEERING,  
REGISTRATION CHAIR



yourselves to this Phase 1, at this time we need to know whether some of you can become potential future "volunteer" speakers. (Note: Funds to acquire demonstration materials will be available)

Members interested in participating in this needed program please send your name, E-Mail and mailing address, and telephone contact to:

Rudy Henning, [henning@eng.usf.edu](mailto:henning@eng.usf.edu);  
Distinguished Professor Emeritus  
Education Member, FWCS IEEE Exec. Committee

and/or

Sean Denny, [Venner20@aol.com](mailto:Venner20@aol.com)  
Teacher in Service Chairman  
FWCS IEEE Exec. Committee



## Brain Teaser Challenge Column

—By Butch Shadwell

**September BTC** Last month in my look into the future piece I very clumsily sprang this problem on you, "... there are these yellow flashing warning lights, which seem to last forever on their batteries. When I design low power/low duty cycle devices, I sometimes use a capacitor power supply to tell me the average power consumption of the circuit. If my circuit draws 50 uA all of the time and then an additional 50 mA for 1 mS every second, what is the voltage drop on my 50,000 uF capacitor power source after 10 seconds? Assume that these current drains do not vary with the capacitor supply voltage drop."

I like to use capacitors the way I described because they will integrate all causes of energy consumption, even some you may not have anticipated. In this case I am asking for the change in voltage on the cap, with some current sinks attached, so it does not matter what the starting or ending voltage actually is. You should know that the  $V_c = q/C$ . So  $dq/C = dV_c$ .  $Q$  is the integral of the current over time, an amp is a coulomb per second, right. So the 50 uA part pulls 500 uA-S and the 50 mA part pulls 500 uA-S. That means that there is a change of 1000 microCoulombs in the charge on the capacitor. When we substitute into the equation, we get .02 vdc change across the cap. But I bet you already knew that.

**October BTC** Girls really dig me. I know that may sound a little vain to those of you who may not have been exposed to my animal magnetism, but it's very evident that chicks dig me. My wife says it's just the early stages of Alzheimer's causing delusions, but I notice how they look at me. I'm as surprised as you are. I am really not sure what they see in me, but the signs are undeniable. It can get embarrassing sometimes. At a party recently one young lady intentionally walked right by me to pretend to throw her empty hors d'oeuvre plate in the trash can nearby. Sure, she did throw the plate away, but it was good for at least one more serving and the intent was clear. Immediately after that I noticed an older woman, definitely not my type, seductively wiping a dollop of cream cheese from her nose, just as she was glancing in my direction. I can imagine all of the guys reading this thinking, "How did Butch get so lucky?" I wish I could tell you fellows, but I'm afraid it's just something I was born with.

So all of you guys and gals out there who may not be blessed with my rugged good looks and impeccable taste in clothes, will have to find some other attractant for the opposite sex. I've heard that expensive jewelry can be effective, but you still have to talk to them at some point. Here I suggest some catchy conversation.

So you find yourself at a social occasion, and an opportunity arises to converse with the target human of interest. Walk right up and as you light up a cigarette with

See BTC Cont. p. 4

## Career Opportunity

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

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1	2	3 <u>5:30 pm:</u> <i>IEEE FWCS ExCom TECO Tampa</i>	4	5	6	7 <u>10 am:</u> <i>IEEE Student Chap. Picnic —see Editorial p.2</i>
8	9	10	11	12	13	14
<i>IEEE / IAS 41st Annual Meeting—p.1</i>						<i>MPAC-WIE p.7</i>
15	16	17,	18	19	20	21
<i>MPAC-WIE p.7</i>						
22	23	24	25	26 <u>8 am-5pm</u> <i>PL-UG Fest 2006 Clrwater p. 7</i>	27	28
29	30	31	1	2	3	4

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