



Chair's Corner

Spring has sprung, and everyone is thinking about one thing: **BASEBALL**. Okay. Maybe not everybody, but the Chicago Section is offering a real bargain to attend the **Cougars baseball game on June 26th**. IEEE-Chicago Section members and their friends and families can get tickets, valued at \$25 each, for only \$10. Even if you are not a fan yourself, the game will be a great opportunity to meet your fellow IEEE members and their families for a fun evening. There are only a limited number of tickets available, so don't delay! Read the article for details.

I've been talking a lot about recognition lately, and an important event for recognizing the best of the best of our engineering peers will take place on **May 22nd. The 2007 Awards Dinner** will honor those Chicago Section members that were elevated to the distinguished rank of IEEE Fellow. Plan to attend and to meet these outstanding individuals. More information below.

Finally, the **election of Chicago Section officers** for the coming year is underway. For the first time, we will be sending ballots electronically. Watch your email inbox for your ballot. And, be sure to vote!

Regards,
John Zulaski

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Upcoming Events:

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Nominating Committee

Connie Kelly, Chair

Chicago Section To Select New Leaders

You don't have to wait until next February for an election; the Chicago Section will be holding its **annual election of new Executive Board** members this month. The nominating committee is proud to endorse the following slate of candidates, all of whom have previously served in various capacities within the section:

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michele@workinmotion.net

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Chicago Section Slate of Candidates 2007-2008

Section Chair	Ron Kollman
Section Vice Chair	Bernie Sander
Section Treasurer	Bill Nartker
Section Secretary	Jim Phillips
Awards Chair	Safoora Fatima
Conference Chair	Param Nair
Government Activities Chair	M. Imtiaz Ahmed
Membership Development	Jack Sherman
PACE	John Zulaski
Program	Marcellin Diha
Publications	George Thomas
Special Events	Bill Nartker
Student Activities	Pat Hutson

We are fortunate to have a dedicated group of nominees for the Board. **Ron Kollman** has been instrumental in converting our prior communications systems to the current methods resulting in savings to the Section. **Bernie Sander** has served the Fox Valley Subsection in addition to managing the Section finances. **Bill Nartker** has been the driving force behind the Networking Group while also planning events for the section. **Jim Phillips** has been active at the society level. The Committee Chairs have been active over the past year furthering their committees.

Shortly, you will receive your ballot via email. Please return it by May 20. Write in candidates are always welcome. Chicago Section looks forward to another groundbreaking year in the new term of office which runs from July 1, 2007 to June 30, 2008.

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Chicago IEEE Fellows

May 22 Dinner To Honor Three New Fellows

The IEEE Chicago Section will honor three members who have been raised to the rank of IEEE Fellow at a dinner on Tuesday, May 22, 2007. **Alan V. Sahakian of Northwestern University** was elevated to fellow for contributions to electrophysiology of atrial cardiac arrhythmias, **Xiaochuan Pan of the University of Chicago** for contributions to nuclear and non-invasive imaging, and **John Estey of S&C Electric Company** for leadership in developing power system distribution equipment.

Jim Sweitzer, PhD will make the featured presentation, "**Acting on the Truth: How you can Help Re-Set the Global Thermostat and Save the Planet!**" Jim is principal of [Science Communications Consultants](#), which is dedicated to making science accessible, exciting, and inspiring to all. He began his career at the Adler Planetarium, Chicago,



Jim Sweitzer, PhD will keynote the Chicago Section dinner.

and later helped create the University of Chicago's Center for Astronomical Research in Antarctica. He made two trips to the South Pole and facilitated the first live video broadcast from the Pole. Jim then became Director of Special Projects for the Rose Center for Earth and Space at the American Museum of Natural History in New York where he produced the award-winning sky show, "Passport to the Universe." He returned to Chicago to become Director of DePaul University's Space Science Center, acting as liaison between NASA's Space Science missions and a seven-state Midwestern region.

On May 22nd, a no-host reception will begin at 6:00pm followed by dinner at 7:00pm at the White Eagle Restaurant. The ticket cost of \$35.00 per person covers a seven course all-you-can-eat family style dinner that includes such favorites as beef brisket and mostaccioli marinara. There is a cash bar. Spouses and guests are welcome. Please make your reservation by calling the IEEE reservation line (630) 493-4333 by noon Monday, May 21. Identify the banquet and give your first and last name and phone number. The [White Eagle Restaurant](#) is located in Niles, Illinois, at 6839 North Milwaukee Avenue between Devon and Touhy.

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Chicago Section Social Outing

Kane County Cougars Game

The [Kane County Cougars](#) baseball game social outing for IEEE members and their families is **Tuesday evening, June 26, 2007**.



Come, join the fun. The picnic starts at 5 PM and the game will start at 6:30PM. Hamburgers, hotdogs, and pop will be provided. We will be in the left field bleachers. The cost of the event is \$10 per person. To order tickets, Chicago Section members are asked to write a check payable to the IEEE-Chicago Section and indicate Cougars and the number of tickets desired on the check. Mail the check to the Chicago Section mailbox, 335 E. Geneva Road PMB # 389, Carol Stream, IL 60188. Tickets can be picked up at the ballpark on the day of the event.

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Future Engineers

Scholarship Applications Due

The deadline for applications for the Chicago Chapter of **the IEEE Electromagnetic Compatibility (EMC) Society annual scholarship** is May 22, 2007. Applicants must be pursuing an undergraduate or graduate degree in an EMC-related field, such as electronic or electrical engineering or physics and demonstrate an interest in EMC or signal integrity. Financial need is not a requirement for the scholarship, but students with financial need are strongly urged to apply. For a copy of the application, visit the [EMC Chicago Chapter website](#). Direct questions to EMC Scholarship Chair [Bob Hofmann](#).

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Career Corner

Jobs Evolve As Company Grows

At the April Career Networking Meeting at the DeVry University Addison campus, Phil Flesch of [SmartSignal Corporation](#) spoke on “**Evolution in a Software Start-up.**” As SmartSignal transitioned from its initial R&D focus to commercial rollout, and then from selling software to offering complete service solutions, the functional roles in the company also changed from mathematicians to application engineers.



IEEE member Pat Ryan, left, talks with speaker, Phil Flesch, after the meeting.

SmartSignal, which makes software that monitors the condition of industrial equipment, now requires a blend of technical expertise from its employees: software programming and engineering, industrial and equipment application engineering, and mathematical modeling. Current engineering roles at the company include **workbench engineers** who set up the enterprise and other systems; **watch list analysts** who operate the computer systems on a regular basis and respond to equipment variations; and **subject matter experts**, who know the intimate working of the equipment, can determine appropriate responses to major operational variations, and recommend action.

In addition to Phil, representatives from two other companies were there looking to hire engineers. So, at the end of the meeting, a flurry of business cards was exchanged.

The **May 16 Career Networking** meeting will feature a speaker from IEEE headquarters who will illustrate the different ways that the **IEEE website can aid job searches**. Please contact [Bill Nartker](#) if you have any questions or know of job openings.

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Communications Society

Students Benefit From IEEE Knowledge



Carol Davids, Professor and Director of the VoIP Laboratory at IIT, stands at the center of the evening's student presenters.

Last year when IEEE Chicago Section member **Gary Oswald of Motorola** attended the annual presentations of the Illinois Institute of Technology (IIT), Rice Campus VoIP student projects, he saw how the project using IP Multimedia Subsystem (IMS) architecture to integrate fixed and mobile communications was dovetailing with his own work. He offered to be a sponsor. This year the team was awarded the first place prize for its presentation at the joint **IEEE Communications Society** and **Fox Valley Subsection** meeting on Tuesday evening, April 10.

The Motorola sponsorship was crucial even though it wasn't a traditional financial sponsorship. Motorola provided something more important. "In this case," explained team member, George Mirov, "it's knowledge. They provided equipment and full support. We were constantly on the phone or email with them, basically every week."

Communications Society President John Poust deemed the project of George and his teammates, Jin Tang and Paul Wilgosiewicz, cutting edge: "If they can make it work, it will allow your cell phone to be all the more like your desk phone. You will be able to dial one number to get your cell phone email and home email. It's one thing to dial in, but to work right, you also need security and quality of service so there are no gaps or drop outs."

At the end of the evening, what impressed John was "how laborious the process of development is. It was a good reminder that when you look at impressive technology, there was all the not too glamorous work that went into it. The end result might be dramatic but the amount of detail that you have to master to make all that stuff seamless is significant."

Osman Malik, another graduate student in information technology and management at IIT appreciated the feedback he received on his project working to achieve high quality audio on emergency 911 VoIP calls. In particular, he's looking forward to trying a different software program that can give better results.

According to **IIT Professor and VoIP Lab Director Carol Davids**, the students present to each other in the first semester and to IEEE members, their future peers, in the second semester. There is a wonderful give and take between the IEEE members and the students. In some of the more advanced projects, the students are teaching the IEEE members about the cutting edge technology they are using, and in other projects the IEEE members help the students. It's an annual event. Consider coming next year to both learn and guide!

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PES & IAS/IES

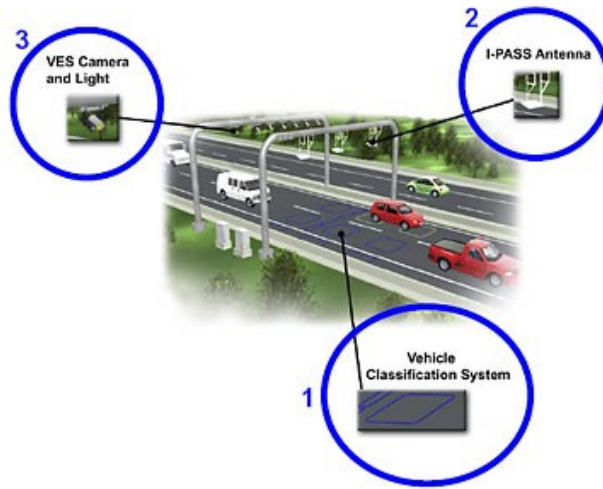
Limousines, Motorcycles, And Other I-PASS Challenges

How does the Illinois Tollway know a) how much to charge you, b) whether you are a paying customer, and c) how to find you if you are not? At the joint **Power Engineering Society (PES)** and **Industrial Applications Society/Industrial Electronics Society (IAS/IES)** meeting at Costa's in Greektown on April 18th, Lynnaia Haugen, and David Williams of [HNTB](#), managers of the [Illinois Tollway's Open Road Tolling \(ORT\) Project](#), explained how ORT uses loops, antennas, and cameras to answer those three very different questions.

To figure out how much to charge, the Illinois Tollway needs to know whether a vehicle is a car, truck, bus, or even a limousine, or motorcycle. The Automatic Vehicle Classification subsystem uses a series of four 12-gauge wire inductance loops embedded in the concrete below the road to create fields of magnetic flux in which the length of each vehicle and number of its axles can be identified. The Tollway, then, uses software algorithms to take the number of axles as well as the vehicle length into account in order to

identify the type of vehicle and determine toll fares. That way, limousines are not charged as trucks. Motorcycles are their own challenge: they register as five feet long and zero axles.

After the inductance loops “wake up” the system, the Automatic Vehicle Identification subsystem uses antennas to communicate with the I-PASS transponders in the passing vehicles to identify who are customers and who aren’t. The antennas use RFID



technology over a 915 MHz radio frequency. A “handshake” is a completed transaction, acknowledging that information was sent and acknowledged in the ORT system, which is designed to handle typical multi-lane, high-speed traffic.

The Violation Enforcement Subsystem uses cameras to take digital images of the front and rear of each passing vehicle in order to record vehicle license plates. The system converts the non-reflective portion of the plates into characters. While most cars have license plates on the back, there are situations that call for front photos. When a car is hauling a boat, the trailer obscures the back license plate. Likewise, the Tollway needs the license for a truck’s owner and thus of the cab, not of the trailer it may be pulling.

Attendees got lots of tips on how the I-PASS system works, including how fast you can travel through an I-PASS lane and still register in the system. But, that’s privileged information (and keep in mind that Illinois State Police troopers are out there watching for speeders). You’ll have to ask one of the 37 people who were there, or come to the next IAS/IES meeting for more fun, practical, and useful everyday engineering tips.

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