

Calendar Of Events

This Month

June 10, 7:00pm  
Executive Committee  
DeVry - Addison  
Chicago Section

July 21, 6:45pm  
[TBD](#) Consultants'  
Network

August 12, 12:00pm  
[Terahertz Technology](#)  
Antennas & Microwave

This Month's Articles

Chair's Column

A review of the past year and highlights of the upcoming year, including an announcement of newly-elected Chicago Section officers. [\[more\]](#)

New IEEE-Chicago Section Executive Committee to Take Office July 1<sup>st</sup>

The 2008-2009 slate was elected at the May Executive Committee Meeting. [\[more\]](#)

New Fellows Honored at IEEE-Chicago Dinner Dance

After recognizing that the email announcements were not spam, **Daniel Gamota** and **Thomas Tobin** were honored to accept their elevation to fellow. [\[more\]](#)

EMC Engineers Learn the Law and More

This year's mini-symposium drew 115 attendees and featured 28 exhibitors. [\[more\]](#)

As Products Change, So Does Safety Testing

**Anura Fernando of Underwriters Laboratories** explained the latest thinking on functional safety. [\[more\]](#)

Chair's Column: Learning and Planning – IEEE-Chicago Section



In this last column before the summer break, I wanted to touch briefly on some of the successes of the past year, and plans for the upcoming year. The next issue of e-Scanfax will be published Oct. 1, 2008.

The current officers of the Chicago Section – Treasurer Bill Nartker, Secretary Jim Phillips, and myself – thank you for your continued support. It has been a year of challenges, but also a year in which we have accomplished a number of goals. Our chapters, subsections, and other associated groups have provided a wide variety of **well-attended talks, seminars and meetings** for the continued development and growth of IEEE members. A number of **new volunteers** have gotten involved in helping make the Chicago Section a more vital organization. Our monthly Executive Committee **review with a Chapter or Affinity Group** has led to new ideas and improved communication with many of these groups. The **Awards Banquet** this year was a well-attended, fun affair. A plan has been established for creating a much **more useful website** and plans are underway for **the 2007-2008 issue of Year In Review**. This year has been a learning experience for me – but one that is helping shape the directions and plans for the coming year.

**Election of new officers** was held at the May Executive Committee meeting. Congratulations to the 2008-2009 officers – **Vice-Chair Bill Nartker, Treasurer Jim Phillips, and Secretary Gary Diaz**. I have agreed to continue as Chair of your Chicago Section (You may recall that I was named Chair to fill a vacancy created by a resignation). The new officers term officially starts on July 1, 2008.

We plan to start the year with an **Officer Orientation Meeting on Sept. 9** where the Section leadership (including Chapters and Student Branches) can share ideas and experiences. We plan to continue the monthly review with selected Chapters and Affinity Groups. We have high hopes for the new Chicago Section website. There will be a strong emphasis on education, contact with students, and professional activities. This includes additional resources in working with students interested in science and events like Engineers Week. We will continue efforts to engage volunteers in the many opportunities for professional development and growth.

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IEEE Chicago Section baseball caps and license plate holders. [Email](#) for info.

And, of course, support will continue to be provided for many other successful on-going programs.

I thank all who have helped make the past year the success that it is and I look forward to working with all of you in the next year.

Have a Great Summer!

**Bernard Sander**  
Chair  
IEEE-Chicago Section

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### **New IEEE-Chicago Section Executive Committee to take office July 1<sup>st</sup>**

Article VI Section 3 of the Chicago Section Operations Manual states: "If only one nomination is made for each office, the election shall be declared by acclamation at a meeting of the Section general membership, or the Section Executive Committee." And so it was that the 2008/2009 officers were elected at the May 13<sup>th</sup> Executive Committee Meeting. Please note that two important positions, Special Events and Student Activities, remain vacant. According to Section 4 of the manual, any vacancy occurring during the year shall be filled by a majority vote of the Section Executive Committee.

#### **Section Officers**

<b>Chair</b>	<b>Bernard Sander</b>
<b>Vice Chair</b>	<b>William Nartker</b>
<b>Treasurer</b>	<b>James Phillips</b>
<b>Secretary</b>	<b>Gary Diaz</b>

#### **Standing Committees**

<b>Advisory</b>	<b>John Zulaski</b>
<b>Awards</b>	<b>Jianhui Wang</b>
<b>Conference</b>	<b>Alexander Choren</b>
<b>Membership Services</b>	<b>Jack Sherman</b>
<b>Professional Activities</b>	<b>John Zulaski</b>
<b>Program</b>	<b>Nicholas Buris</b>
<b>Publication</b>	<b>George Thomas</b>
<b>Special Events</b>	<b>Vacant</b>
<b>Student Activities</b>	<b>Vacant</b>

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### **AP/MTT Chapter Sponsors Distinguished Lecture on Terahertz Technology**

The **joint Chicago Chapter of the Antennas and Propagation and the Microwave Theory & Techniques Societies** presents a distinguished lecture and luncheon seminar at **Argonne National Laboratory** on **August 12, 2008 at 11:45am**. **Dr. Peter de Maagt of the European Space Agency** will speak on **Terahertz Technology for Space and Earth Applications**. The terahertz (THz) region of the electromagnetic spectrum lies between the more established domains of microwaves and optics. A typical THz technique will incorporate aspects of both realms, and often draws on the best of both. As a result of recent breakthroughs, the THz region is finally finding applications outside its traditional heartlands of remote sensing and radio astronomy. Examples of novel applications include medical and dental imaging, gene therapy, communications, and detecting the DNA sequence of viruses and bacteria. Dr. de Maagt, who is based in the Netherlands, serves as an Associate Editor for the IEEE Transaction on Antennas and Propagation. For more information and to arrange a gate pass, [email](#) C. Jing or call 630-252-0586 to arrange for a gate pass. Passes may take up to four weeks so please register early.

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### **New Fellows Honored at IEEE-Chicago Dinner Dance**

The IEEE-Chicago Section celebrated the elevation of two of our local members to the rank of IEEE Fellow at an **Awards Dinner Dance Friday, May 2nd** at the **White Eagle Restaurant** in Niles, Illinois. **Daniel Roman Gamota, Motorola**, was elevated for leadership in nanotechnology based printed electronic products and **Thomas Tobin, S&C Electric Company**, for leadership in electric

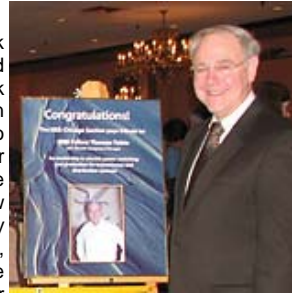
power switching and protection for transmission and distribution systems.



**Daniel Gamota**

In his acceptance speech, Dan Gamota mentioned that it is important to have the support of management that continues to push you. You also need to reach out to your engineering colleagues in order to build a strong team that challenges you on a daily basis. Finally, you need perseverance. Mr. Gamota said it was a great feeling to be elevated to IEEE fellow.

Tom Tobin took the time to thank his colleagues who nominated him. They have to do all the work in generating the fellow nomination submission. They took the time to do it and he appreciated their efforts. Both gentlemen were notified of their elevation to fellow by email and at first thought they had received some spam. Luckily, they took the time to read the notifications stating that their official award letters were in the mail.



**Tom Tobin**

Student Activities Chair **Pat Hutson** introduced **Amir Zohar** of the **University of Illinois Student Branch** recognizing his unique organizational skills and his enthusiasm. Amir suggested not to wait for permission but to just go out and do it. He recommended that the student branches have some flexibility in spending their budget. Also present was **UIC Student Branch President John Stushek**.

Larry Hause of Region 4 recognized the Chicago Section for having 14 of the 23 most active chapters in the region.

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## **EMC Engineers Learn the Law and More**

Walking into the Itasca Country Club on May 13 was like walking into a mini-McCormick Place: the main room was full of 28 exhibitors. What was going on? **The Chicago Chapter of the Electromagnetic Compatibility (EMC) Society Annual Mini-Symposium**. The annual event drew 115 people to a day chock-full of presentations.

**Tom Braxton of Shure, Inc.** began the day with a review of the fundamentals of EMC, which is ultimately a product-quality issue. The opposite of EMC is Electromagnetic Interference (EMI), which requires an electromagnetic source, a path, and a victim. It is always easier and cheaper to stop EMI at the source than to choke it off at the victim. For safety reasons, regulators get involved in EMC to protect the public-welfare. Technology is not the driver, but the vehicle that creates a solution of the problem.



**Bob Hofmann, Cliff Kraft, and Frank Krozel share a laugh at the EMC mini-symposium.**

The highlight of the day for many was **Dr. Clifford Kraft**, a former

Lucent EMC engineer who is now an attorney in private practice. Cliff began his presentation on the "Legal Issues for EMC Engineers" with a slide stating, "Life is Good!" That's because the chances are small that an EMC engineer will be held liable for something, however, his or her employer may be. Cliff reviewed five ways individuals may be liable: professional liability, which applies to professional engineers; negligence, which applies to everyone; and copyright, trademark, and patent infringement. He urged the EMC engineers in the audience to make sure that the documents, especially the test reports, that they sign are true and accurate. In addition, registered Professional Engineers can be held professionally liable on issues related to public safety. Cliff emphasized that the law is very concerned about safety, and EMC engineers have a "calling" because "the fundamental thing we do is provide safety."

Cliff ended by giving the audience some tips in case they are deposed or asked to produce all their records for a lawsuit. The worst thing you can do is destroy records, no matter how damaging they may be to you. In the digital age, Cliff said, "Email is forever." It's best to produce everything, even more than they asked for. If you abide by your company's records maintenance policy and only destroy records according to its mandated timeframe, you will be fine.

"There is no way you can help your case in a deposition." Cliff warned, "You can only make it worse." Therefore, even though engineers' natural tendency is to explain things in great detail, it is best just to answer the question asked and say no more. While your lawyer may be with you during a deposition, short of kicking you under the table, he or she cannot stop you from talking. Your lawyer can object to a question, however, and the question and answer may later be removed from the proceedings.

Also at the mini-symposium, long-time society members **Bob Hofmann of Hofmann EMC Engineering** and **Ray Klouda of Elite Electronic Engineering** spoke on recent and planned updates to various standards, **Lawrence Gradin** reviewed laboratory accreditation issues, and **Vic Hudson of Rohde & Schwarz** spoke on using CISPR detectors for EMI measurements. Mini-Symposium Chair **Frank Krozel of Electronic Instrument Associates** was pleased with the turnout and the new location. Having chaired the event for ten years, he is always pushing for improvement. He says that the great group of people he works with in the local EMC chapter makes his job easy. For pictures and more information on the event visit the Chicago EMC [website](#).

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## As Products Change, So Does Safety Testing

In his presentation, "**General Principles of Functional Safety in Consumer Product Design**," at the May meeting of the **IEEE Chicago/Rockford Consultants' Network**, **Anura Fernando, Principal Engineer and Researcher for Software and Functional Safety** at



Anura Fernando provided the Chicago/Rockford Consultants' Network with insights on functional safety.

**Underwriters Laboratories**, discussed how the transition from electromechanical systems to programmable electronic systems in consumer products has necessitated new approaches to functional safety. While the traditional electromechanical relays are reliable, robust and low cost, their switching speeds are slow. Solid-state relays have no moving parts that can wear, but they are susceptible

to electro-magnetic interference (EMI) and are more likely to switch falsely.

The “components” that could fail unsafely in an electromechanical relay include: armatures corroding; springs losing tension; winding insulation breaking down; vent openings blocking and preventing release of out-gassing; PWB’s degrading, overheating, or losing mechanical integrity; contacts sputtering, pitting, or welding due to arc energy; terminals loosening and opening or shorting; and support structures deforming.

Solid-state relays eliminate these previous types of failures but the new technologies present their own types of failures even with just electrons moving through semiconductor material. The “components” that can fail unsafely in solid-state relays include oxide collars experiencing dielectric breakdown; inversion layers susceptible to “hot” electrons and sub-threshold gate-to-source channel leakage; gate oxide experiencing quantum tunneling; interconnects introducing capacitance related switching delays; and atoms experiencing electro-migration, metallization, and other phenomena that can alter semiconducting properties. Software can fail due to specification mistakes such as the wrong requirements, implementation mistakes such as coding errors, tool problems such as compiler flaws, component defects such as transistors shorting, and external disturbances such as power variations or EMI.

As a result, assessing the functional safety of such a new complex system entails reviewing the product safety lifecycle. Anura stressed that reliability does not equate to safety. He reviewed fail-safe versus fail operational and deterministic versus probabilistic safety measurement standards. For more information, download his most informative presentation at Chicago/Rockford Consultants’ Network [website](#).

Attendees met for dinner at Baker’s Square around the corner from the Palatine Public Library where the Consultants’ Network meets every other month. A highlight of every meeting is the “elevator pitches” where all in attendance have an opportunity to introduce themselves and their companies in the length of time they might have on an elevator with a new acquaintance . . . or prospect.

If you are a consultant, even part-time, or think you might like to consult, consider attending the next meeting on July 21. For more information on the network’s lead sharing program and other professional growth opportunities, visit their [website](#) or [email](#) membership chair Andy Mehta or call him at 909-456-4531.

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