

Bulletin

IEEE Pittsburgh Section

January 2006 Volume 55, No. 1



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Editor of this issue: Jace Cochrane, P.E. jacejc@pghmail.com (412) 390-0718

Contributors: Bill Bruss, George Crawford, Tom Dionise, Joe Kalasky, Heung-No Lee, Mike Oliver, Kal Sen, John Twigg, and Chuck Urso.

All announcements for publication in a particular monthly bulletin are due to the Editor by the 20th of the previous month. Monthly issues of the bulletin are posted on the web site www.ewh.ieee.org/r2/pittsburgh. The accuracy of the published material is not guaranteed. If there is any error, please bring it to the Editor's attention.

• From the Outgoing Chair

A very Happy New Year to all! I hope that you had a good holiday season and are looking forward to the New Year and the opportunity to make advances in your chosen career.

I would like to highlight some of the achievements during my tenure as Section Chair in 2005.

- All 8 technical Chapters and the Upper Mon Subsection met or exceeded the minimum number of meetings requirement during the year.
- Two Societies, Power Engineering and Industrial Applications, individually received the Outstanding Large Chapter Award for their activities during 2004.
- The Pittsburgh Power Engineering Society won the second best web site award among the 172 Chapters in the world. Thanks go to Webmaster Andrew Novotny.
- A new Chapter, Electromagnetic Compatibility Society (EMCS), was established.
- A GOLD Affinity group was established.
- A Life Member Affinity group was established.
- The Consultants Network was revived.
- The PACE group stayed active.
- The number of participating Universities in the book scholarship award doubled.
- Some of the Section Executive Committee (ExCom) members made annual Congressional visits and attended the PACE conference and Section Congress.
- The annual Robot Car Race at the Carnegie Science Center was a success for the 12th consecutive year.

It seems that we have accomplished a lot in 2005. But, a lot more can be done, such as establishing the Women In Engineering Affinity group. I believe that the changes made in the Section activities would bring dividends in the future.

We welcome the newly elected ExCom under the leadership of Dave Vaglia. The new ExCom is very capable of organizing the best quality programs so that the members can stay in touch with the latest technologies.

This is my last letter to you as the Section Chair. I express my heart-felt thanks for giving me the opportunity to serve you as the Chair of the IEEE Pittsburgh Section in 2005. This has been a rewarding experience. I urge all of you to come forward and be involved in a technical Chapter, Affinity group, and/or the Section. It seems that we can never have enough volunteers. Let us keep the tradition of excellence of IEEE Pittsburgh Section alive and bring back its glorious past.

Kal Sen

Section

Chair & Awards Co-Chair – David J. Vaglia, P.E.
davevaglia@ieee.org (412) 491-6944

Vice Chair – John Twigg
jtigg@ascent-systems.com (412) 795-4444

Secretary – Charles Urso, P.E.
curso@llitechnologies.com (412) 338-4871

Treasurer – Harold Hagerty, P.E.
hhagerty@ieee.org (412) 492-0943x226

Webmaster – Andrew Novotny
andrewnovotny@ieee.org (412) 351-4954

Immediate Past Chair – Dr. Kalyan Sen (Kal)
senkk@ieee.org (724) 696-1611

Chapters

Communications Society
Chair: Dr. Prashant Krishnamurthy
prashant@tele.pitt.edu (412) 624-5144

Computer Society – Chair: John Twigg (see above)

Engineering In Medicine & Biology Society
Chair: Dr. Zhi-Hong Mao
maozh@engr.pitt.edu (412) 624-9674

ElectroMagnetic Compatibility Society
Chair: Michael J. Oliver
emi@majr.com (814) 763-3211

Power Engineering & Industrial Applications Societies
Chair: Charles Urso, P.E. (see above)
Vice Chair: Andrew Novotny (see above)

Magnetics Society – Chair: Dr. Ganping Ju
Ganping.Ju@Seagate.com (412) 918-7046

Robotics Society – Chair: Dr. Guy Nicoletti
Nicolett+@pitt.edu (724) 836-9922

Signal Processing Society – Chair: Dr. Heung-No Lee
hnlee@engr.pitt.edu (412) 624-9677

UpperMon Subsection – Chair:
Dr. Dimitris Korakakis
Dimitris.Korakakis@mail.wvu.edu
(304) 293-0405 x2512

Life Member – Chair: Bob Grimes, P.E.
r.d.grimes@ieee.org (412) 963-9711
Vice-Chair: Wally Raisanen
wraisanen@ieee.org (724) 986-4467

Committees

Professional/Career Activities (PACE)
Chair: Joe Kalasky, P.E.
j.kalasky@ieee.org (724) 838-6492

Consultants Network
Co-Chair: Dr. George Crawford, P.E.
gwc2@psu.edu (412) 675-9164
Co-Chair: Peter Mantzouridis
Coolpetros1@yahoo.com (412) 780-0201

Membership Development
Chair: Dr. Karl F. Muller, P.E.
karlmuller@compuserve.com (412) 374-6051

Student Activities – Chair: Ralph Sprang
rsprang@ieee.org (412) 635-2663

GOLD – Chair: Andrew Rydholm
andrew_rydholm@yahoo.com (412) 261-3200 x281

Awards – Co-Chair: Ray Valentine, P.E.
r.d.valentine@ieee.org (724) 733-5083

Publicity – Chair: Thomas Dionise, P.E.
ThomasJDionise@eaton.com (724) 779-5864

• *Sensor Networks for Ecological Study*

Speaker: Gregory J. Pottie, Deputy Director, Center for Embedded Networked Sensors, Professor, UCLA EE Department
Date: Monday, January 9, 2006
Time: 12:00 Noon - 12:10 PM Refreshments and mingling
12:10 PM - 1:00 PM Seminar talk
1:00 PM - 1:30 PM Question & Answers
Place: 1175 Benedum Hall, University of Pittsburgh, Oakland Campus
Pittsburgh PA 15261
Sponsors: Signal Processing Society and University of Pittsburgh ECE Department

Abstract: Much recent research in sensor networks has focused upon a paradigm of large numbers of randomly placed, resource-constrained sensor nodes forming flat networks. For any sustained deployment logistical issues such as deployment, maintenance (including calibration) and removal of nodes can dominate costs. In such situations, provision of infrastructure is essential. We describe how communications and mobility infrastructure change the nature of the science experiments that can be attempted in some example deployments for terrestrial and aquatic ecological systems investigations. New engineering systems research questions that emerge from the use of such infrastructure are described.

About the speaker: Gregory J. Pottie received his B.Sc. in Engineering Physics from Queen's University, Kingston, Ontario in 1984, and his M.Eng. and Ph.D. in Electrical Engineering from McMaster University, Hamilton, Ontario, in 1985 and 1988 respectively. From 1989 to 1991 he worked in the transmission research department of Motorola/Codex in Canton MA, with projects related to voice band modems and digital subscriber lines. Since 1991 he has been a faculty member of the UCLA Electrical Engineering Department, serving in vice-chair roles from 1999-2003. Since 2003 he has served as Associate Dean for Research and Physical Resources of the Henry Samueli School of Engineering and Applied Science. His research interests include reliable communications, wireless communication systems, and wireless sensor networks. His current focus is on the information theory of sensor networks. From 1997 to 1999 he was secretary to the board of governors for the IEEE Information Theory Society. In 2005 he became a Fellow of the IEEE for contributions to the modeling and applications of sensor networks. Dr. Pottie is the deputy director of the NSF-sponsored Center for Embedded Networked Sensing and is a co-founder of Sensoria Corporation.

• *IEEE Fellows from Industry*

As the Pittsburgh Section Professional Activities Chair, I advise you on an item of Professionalism. There is a gross lack of Fellow Awards to IEEE members from industry. Although non-academically employed IEEE members outnumber academically employed members two to one, the Fellow Awards have the reverse distribution. This seems to be due to the fact that Fellow applications from academia are double those from industry. There are, on average, only 200 Fellow applications from non-academically employed members each year. I encourage all Senior Members from industry to start their Fellow application process now.

Joe Kalasky, PACE Chair

• *Tour of Pittsburgh Internet Data Center and Presentation on Information Availability Strategies*

Speaker: Pat Bixel of SunGard Availability Services
Date: Wednesday, January 18, 2006
Time: 6:00 PM – social with pizza and pop
7:00 PM – tour and presentation
Place: Pittsburgh Internet Data Center, 2202 Liberty Ave, Pittsburgh 15222
Sponsor: Computer Society
RSVP: By Jan 17 to John Twigg at (412) 795-4444 or jtwigg@ascent-systems.com

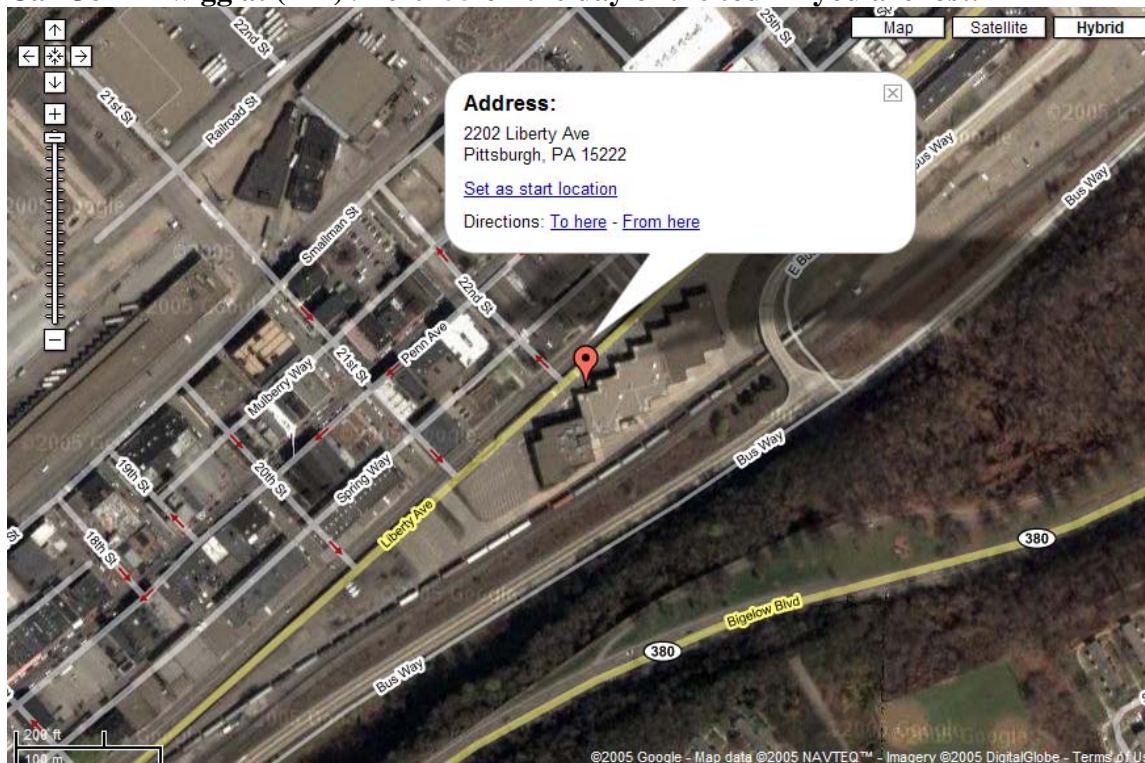
All IEEE members and their guests are welcome.

In this meeting, Pat Bixel from SunGard will give a tour of the Pittsburgh Internet Data Center and describe how an information technology (IT) availability strategy can help organizations build and maintain a secure, available, and redundant IT environment. There will be a social hour followed by a tour and presentation at SunGard's office.

About the speaker: Patrick Bixel was named Internet Data Center manager for SunGard in 2002. He is responsible for developing and implementing the strategic direction of the Pittsburgh Internet Data Center (IDC). Pat was instrumental in SunGard's recent attainment of ISO 9001:2000 certification as well as SAS70 certification, underscoring a commitment to provide the highest quality products and services to SunGard's customers.

Directions: Get on Liberty Avenue heading east, out of downtown Pittsburgh. Turn right into Liberty Center's parking lot near the intersection of Liberty Avenue and 21st Street. Park and go to the door marked "2202". SunGard's facility doesn't have an external sign for security reasons, but they may have a temporary sign outside. In any event, look for "2202" on the door.

Call John Twigg at (412) 916-0255 on the day of the tour if you are lost.



- ***Expanding Your Consulting Business***

Speaker: Mike Sylvester, VP of Operations, AllTek Staffing and Resource Group
Date: Tuesday, January 24, 2006
Time: Social- 6:30 PM Program-7:00 PM
Place: Westinghouse Energy Center Directions on page 10
Sponsor: Consultants Network
Contact: George Crawford (412) 675-9164

Mr. Mike Sylvester of AllTek Staffing and Resource Group will make a presentation geared for consultants looking to expand their business. Mike has led AllTek, a 3-year-old firm, to over 500% growth year-to-date versus last year. AllTek has been recognized for the 2nd year in a row by the Pittsburgh Technology Council as the fastest growing staffing firm in Pittsburgh.

AllTek Staffing and Resource Group is a major technical consulting firm in the Pittsburgh area. AllTek is strictly focused on filling professional technical positions, both contract and permanent, in the greater Pittsburgh manufacturing, engineering, and construction industries. All engineering and IT disciplines are served.

If you are a consultant offering engineering services or thinking about becoming one, the IEEE Consultants Network (CN) is for you. Network with other consultants and be included in CN's on-line listing of consultants, which is used by companies in need of consultants.

- ***2006 PES Chapter Outstanding Engineer Award***

The Power Engineering Society of IEEE Pittsburgh Section is seeking nominations from local IEEE PES members for the 2006 PES Chapter Outstanding Engineer Award. The Outstanding Engineer Award is designed to recognize members of the Pittsburgh PES Chapter who have made outstanding contributions to their profession through their technical abilities. The nominees will be judged on the basis of their activities during the past two calendar years (2004 and 2005). Please submit your nominee or nominate yourself, by providing the following information:

Name, IEEE Membership Number, IEEE Grade, Professional Affiliation, Importance of technical contributions, Patents and/or proprietary designs and/or papers and/or technical presentations, Description and years of technical distinction and responsibility, Service to IEEE, Service to the engineering profession outside IEEE, and Recognition through other honors.

Nominations are to be submitted to Harry Hagerty, the Chair of the PES Award Committee, at hhagerty@ieee.org no later than January 31, 2006. The decision of the Award Committee is final. The winner will be recognized at the Pittsburgh Section's History Dinner in the April.

- ***Volunteer for Future Cities Competition***

Future Cities is a competition for teams of middle school students in which they use concepts related to engineering and city planning. Over 100 volunteers are needed for the Pittsburgh Regional Competition. Learn more at <http://www.futurecitypittsburgh.org> or call Bill Pruss at (412) 273-7100.

- ***The Importance Of Obtaining A PE License***

Speaker: Joseph M. DeSalvo, P.E.
Date: Wednesday, January 25, 2006
Time: Social-6:30 PM Program-7:00 PM
Place: Westinghouse Energy Center Directions on page 10
RSVP: Dr. Kal Sen at senkk@ieee.org or (724) 696-1611 by January 18, 2006
Organizers: Power Engineering Society/Industrial Applications Society
Everyone is welcome.

After receiving your degree in engineering, you started your career in Engineering. You and your family invested a lot of time and money and have made sacrifices to give you the opportunity to obtain your education and work experience. Common sense would tell you that it would be wise to purchase some insurance that would help protect the investment. The speaker will stress that taking the necessary steps to become a Licensed Professional Engineer is the insurance policy you need. Being a Professional Engineer, adhering to the Code Of Ethics and Rules of Professional Conduct, and making Continuing Professional Competency a part of your lifestyle will be the ingredients needed to protect your job and engineering career. In addition to the benefits of registration, the speaker will address the process for registration, the requirements, state laws, and the exams and how to prepare for them.

About the speaker:



Joe DeSalvo is a Professional Engineer with degrees in electrical engineering (Pitt) and industrial management (Carnegie Mellon). He is a Senior Life Member of the IEEE and is presently on the adjunct faculty of Pennsylvania State University where he teaches FE (EIT) and P&P (PE) review courses and several engineering and economics courses in the Advanced Power Engineering Program. Mr. DeSalvo is retired from Allegheny Power, where, as Manager of Substation and Methods Standards, he had responsibility for substation designs and industrial engineering studies for three operating companies serving five states. He has served the IEEE in over 60 positions at all levels during the last 40 years. He was Chairman of the Pittsburgh PES Chapter in 1975-76

when it received the “Outstanding PES Chapter” award. He is a past Chairman of the Pittsburgh Section and a past Director of Region 2. He received the IEEE Centennial Medal of Honor in 1984. In addition to IEEE activities, Mr. DeSalvo is a senior member of the Institute of Industrial Engineers and a member of Eta Kappa Nu and Sigma Tau honorary societies.

- ***Grounding and Bonding Class***

As a service to our community, the Pittsburgh PES/IAS plans to sponsor a full day training session on Grounding and Bonding for IEEE members and non-members. This session will be presented by Joe Tedesco, a regular contributor to EC&M Magazine. This type of course normally costs \$200 to \$400 per person. Our projected member cost will be \$65. Certified continuing education credits will be available for an IEEE processing fee of \$10. This course is tentatively scheduled for Saturday, March 25, 2006. Please indicate your interest by notifying Chuck Urso at curso@llitechnologies.com or (412) 338-0700.

• *Frequently Asked Questions about EMC*

Speaker: Elya B. Joffe, VP of Engineering, K.T.M. Project Engineering
Date: Tuesday, January 31, 2006
Time: Social begins at 6:30 PM Program 7:00 PM – 8:30 PM
Place: Westinghouse Energy Center Directions on page 10
Sponsor: EMCS Chapter

This will be the first meeting of the newly-formed Pittsburgh Chapter of the Electromagnetic Compatibility Society.

Abstract: It is commonly said that there are many answers to each question, most of which are... wrong! EMC considerations are no different. Moreover, many concepts, but mainly misconceptions, accompany the common EMC "knowledge". Questions regarding such issues as decoupling strategies, PCB layout, enclosure shielding, and ground loop concerns are often addressed, with many (not necessary consistent) answers to each. This presentation includes 12 frequently asked questions and proposed, well-founded replies to each, along with the technical rationale and scientific reasoning. The speaker hopes this lecture will demystify EMC and reveal some of the concepts that to so many are considered "black magic". See page 8 for information about the speaker.

• *Path of Least Inductance Principle*

Speaker: Elya B. Joffe, VP of Engineering, K.T.M Project Engineering
Date: Wednesday, February 1, 2006
Time: Program 5:00 PM – 6:15 PM
Place: Westinghouse Energy Center Directions on page 10
Sponsor: EMCS Chapter

Abstract: Few principles in EMC are confusing as much as those of "Grounding" and "Shielding". Indeed, misconceptions as to the mechanisms of those techniques have led to many wrong concepts and implementations, which today are extremely difficult to uproot. Is it better to use single point or multi-point grounding? In which frequencies? Is it better to ground a shield at both ends or at one only? And how about the signal circuits? How does return current flow on the PCB? Does it follow the shortest path? The key to the answer to all these questions lies within the domain of a concept called: "The Path of Least Inductance". That is the path that current will follow at high frequencies. (What is "high" for this purpose?) This lecture will discuss the very important concept of the "Path of Least Inductance", and the application of this principle for providing answers to the above questions and others. The presentation will be primarily practical, with mathematical derivation kept to the absolute minimum, while applications and practical examples will be elaborated and discussed extensively.

This program will be immediately followed by a social and the program described below. See page 8 for information about the speaker.

• *Electrophobia or Why are People Really Scared of EM Fields?*

Speaker: Elya B. Joffe, VP of Engineering, K.T.M. Project Engineering
Date: Wednesday, February 1, 2006
Time: Social begins at 6:15 PM Program: 7:00 PM – 8:30 PM

Place: Westinghouse Energy Center Directions on page 10

Sponsor: EMCS Chapter

Abstract: Why are people really scared of Electromagnetic Fields (EMF)? Are they really the "killing fields" as denoted by the press? Some common claims against EMF include: "Science still does not know how dangerous the radiation is, but, within a year, a decade, a century, it will"; "Standards for limiting dangerous exposure were prepared by biased parties"; "Standards consider thermal effects only, whereas, many a-thermal effects, including cancer, are not considered"; "Wait and see - EMR exposure will be similar to asbestos and smoking" (and yet, they keep on smoking); "Well-known, respectable scientists do not exclude connection between EMR and cancer"; "Prudent Avoidance - better be safe than sorry". This presentation attempts to shed light on the issue of "Electrophobia". It discusses the history of EMF usage, the evolution of EMR standards- from the turn of the 20th century to date, and the evolution of the public response to EMF and its usage. Although the presentation covers only technically acceptable figures, statistics, etc., it rather addresses this controversial issue from a user's point of view, addressing the sources of fear, the facts and fallacies, and the risk in risk research.

About the speaker:



Elya B. Joffe has been employed by K.T.M. Project Engineering, an engineering consulting company in Israel, since 1987. He holds the title VP of Engineering and works as a Senior EMC engineering specialist and consultant. Elya earned a B.ScEE in Electrical Engineering from the Ben Gurion University in Israel, is a Registered Professional Engineer and is a NARTE- (US National Association of Radio and Telecommunications Engineers) certified EMC and ESD Control Engineer. Elya has over 25 years of experience in government and industry in EMC/E³ (Electromagnetic Compatibility/ Electromagnetic Environmental Effects) for electronic systems and platforms (in particular – aircraft and aerospace). He is actively involved in the EMC design of commercial and defense systems from circuits to full platforms. His work covers various fields in the discipline of EMC, such as NEMP and lightning protection design, as well as numerical modeling for solution of EMC Problems. Mr. Joffe is also well-known in Israel and abroad for his activities in EMC training and education, having developed and presented many courses on EMC and related topics. He has authored or co-authored over 30 papers published in the IEEE Transactions on EMC and Broadcasting or the Proceedings of International EMC Symposia.

Mr. Joffe is Senior Member of IEEE and has served as a member of the IEEE EMC Society Board of Directors since the year 2000. Elya is currently the VP for Member Services and the Past VP for Conferences and Symposia. He is also the Immediate Past Chairman of the Israel IEEE EMCS Chapter. He serves as the Israel IEEE Section Industry Relation Officer (IRO). Mr. Joffe is a member of the IEEE Standards Association, a member of the IEEE EMC Society Standards Development Committee (SDCom) and Chairman of the EMC-S Standards Advisory and Coordination Committee (SACCom). He is also Chairman of WG 473 for revision of IEEE STD 473 ("IEEE Recommended Practice for an Electromagnetic Site Survey (10 kHz to 40 GHz)"). Mr. Joffe served as a "Distinguished Lecturer" of the IEEE EMC Society in 1999 and 2000.

Mr. Joffe received several awards from the IEEE and EMC Society for his activities. In particular he is a recipient of the IEEE EMC Society Laurence G. Cumming Award for Outstanding Service, the Honorary Life Member Award of the IEEE EMC Society, the IEEE

EMC Society Technical Achievement Award, the IEEE EMC Society Symposium Chair Award, and the IEEE Third Millennium Medal. Recently Elya was elected the recipient of the very prestigious 2006 IEEE RAB Larry K. Wilson Transnational Award.

- ***Impact of Power Quality on Facilities Management***

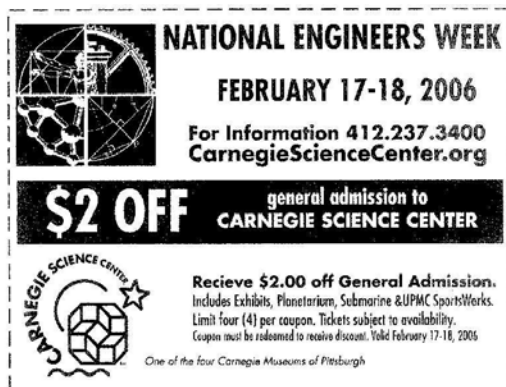
Speakers: Dan Carnovale, Performance Power Solutions Manager, Eaton Electrical
Tom Dionise, Sr Power Systems Engineer, Eaton Electrical
Date: Monday, February 13, 2006
Time: 6:00 PM Dinner
6:30 PM Presentation
7:15 PM Demo – Power Quality Solutions Lab
Place: Eaton Electrical Services & Systems, Warrendale PA
Sponsors: Association of Energy Engineers (AEE), Association for Facilities Engineering (AFE), and Pittsburgh Section of IEEE (IAS/PES)
More details will be provided in the February bulletin.

- ***Engineers Week-Call for Volunteers***

Once again the IEEE will have a demonstration table for Engineers Week 2006 at the Carnegie Science Center (CSC) on **Saturday, February 18**. Volunteers are needed to take a turn at our table for about 1 hour each. If you are interested, please reply with the time slot you would like by February 11. The first 1-hour slot begins at 10 AM and the last begins at 4 PM. There will be over 60 such tables sponsored by engineering societies and companies. CSC expects more than 600 engineers and several thousand children and adults to attend. The volunteers get an E-Week T-shirt, free admission, free parking, and \$2 off coupon for family members.

In general, the idea is to get the children involved. The IEEE table will be set up about 8 AM and will include some signage and pamphlets on careers in electrical engineering. We will demonstrate some simple electrical circuits: hands-on items for the children. Do you have other ideas? Something you would like to demonstrate? Please bring it with you.

To volunteer to help with the IEEE table for Engineers Week, just email tom.dionise@ieee.org or call (724) 779-5864, and you will be given more details and included in future mailings.



- ***Lean Manufacturing***

The Pittsburgh Chapters of Power Engineering and Industrial Applications Societies are organizing a seminar on Lean Manufacturing. Please indicate your interest in speaking or attending by contacting Chuck Urso at curso@llitechnologies.com or (412) 338-4871.

• **Interviewing Wrap-up**

On November 10, Mike Sylvester, VP of Operations at AllTek Staffing and Resource Group gave an invigorating presentation on the interviewing process. He enlightened those present on techniques to match their responses to the personality of the interviewer. AllTek is a renowned technical recruiter in the Pittsburgh area and is interested in assisting our section. We encourage members with employment needs to contact AllTek at 11900 Frankstown Rd, Suite 201, Pittsburgh PA 15235, (412) 537-0077 or email Mike Sylvester at mike@alltekstaffing.com. We thank IEEE Volunteer Chuck Jewart and the University of Pittsburgh for providing the facilities for our November 10 PACE meeting.

2006 Calendar – Meetings of IEEE Pittsburgh Section

	Jan	Feb	Mar	Apr
Executive Committee	19 Point Park	16 Point Park	16 U Pitt Greensburg	
Section		18 Eweek table		History Dinner
Communications				
Computer	18 Tour SunGard			
EMBS				
EMCS	31 FAQs	1 Path of Least Induc &EMF phobia		
PES/IAS	25 P.E. License	13 Power Quality	26 (?) Grounding course	
Magnetics				
Robotics				
Signal Processing	9 Sensor Network			
Upper Mon				
Consultants Network	24 Expand business			
Life Member				
GOLD				
PACE				
Student Activities				

Directions to Westinghouse Energy Center

From Pittsburgh take Interstate 376 East (Parkway East). Take Exit 14A to Monroeville. Cross Business Rt 22 at the traffic light and proceed on Rt 48 South (Moss Side Blvd) approx ½ mile (two traffic lights). The 2nd traffic light is at a 4-way intersection with an Exxon station on the right. Turn left onto Northern Pike. Proceed approx 0.2 miles and turn right at the 1st traffic light onto Westinghouse Dr. Travel 0.7 miles (past the guard stand) to the 3 flags where the building's main entrance is located. Parking the evening will be plentiful. Use the main entrance and check with the security guards inside. You will be directed to the proper room for your meeting.

From the PA Turnpike, take Exit 57 (Monroeville). After the toll plaza, get in the left lane to get on Business Rt 22 West. At the first light, turn left onto Rt 48 South (Moss Side Blvd) and follow the above directions.