IEEE Pittsburgh Section

Bulletin

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Included in this issue:

Editor: Philip Cox, p.e.cox@ieee.org; Contributors: Jace Cochrane, Tom Dionise, Joe Kalasky, Guy Nicoletti, Andy Novotny, Kal Sen, Ralph Sprang, and Dave Vaglia.

All announcements for publication in a particular month's bulletin are due to the Editor by the 20th of the previous month. The accuracy of the published material is not guaranteed. If there is any error, please bring it to the Editor's attention. The Section's web site **www.ewh.ieee.org/r2/pittsburgh** *has past issues of the bulletin and lots of other useful information*

• *From the Chair*

Section Chair Comments

Greetings, friends. I trust you are all doing well.

The Pittsburgh Section will be relaxing a bit over the summer, as we typically do. There will still be some programs and meetings over the summer, but not so many. Knowing that our members take vacations and travel in the summer and that everyone needs a break from time to time, we scale back our activities. We will resume the full schedule in September. The Section Picnic in September would be a great opportunity to get involved and meet the other Section members.

The 2008 Sections Congress is in Quebec Canada. This event occurs every three years and is a gathering of international section leadership. The Region 2 meeting will also take place at the Sections Congress. The executive committee voted to send myself and John Twigg. Please let us know if you have concerns or issues you would like us to bring up at these meetings.

Membership elevation benefits both the member and the Section. Stepping up from member to senior member is a simple process for virtually any member with several years of experience. It's a particular honor to both the member and the Section when a member is elevated to Fellow. This is a more involved process and requires a nomination. Fellows are those members who have made significant contributions to both IEEE and professionally. The nomination period for Fellow membership elevation is now open, so please consider which of your colleagues you might want to nominate to be a Fellow.

As always, I welcome comments, concerns, or feedback. Please let me know what is on your mind.

Ralph Sprang
Pittsburgh Section Chair
rsprang@ieee.org

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rsprang@ieee.org

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jtwigg@ascent-systems.com (412) 795-4444

Secretary – Robert Brooks rbrooks@medrad.com
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Immediate Past Chair – David J. Vaglia, P.E.
davevaglia@ieee.org (412) 491-6944

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

Chapters

Communications Society - Chair: Phil Cox
p.e.cox@ieee.org (724) 443-0566

Computer Society – Chair: John Twigg (see above)

Engineering In Medicine & Biology Society
Co-Chairs: Bob Brooks (see above), 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 & Industry Applications Societies
Chair: Andrew Novotny
andrewnovotny@ieee.org (412) 351-4954

Magnetics Society – Chair: Dr. Ganping Ju
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Robotics Society – Chair: Dr. Guy Nicoletti
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Signal Processing Society – Chair: Dr. Heung-No Lee
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Society on Social Implications of Technology
Chair: Joe Kalasky, P.E., j.kalasky@ieee.org (724) 838-6492,
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Affinity Groups

GOLD – Chair: Andrew Rydholm,
andrew_rydholm@yahoo.com

Life Member – Chair: Bob Grimes, P.E.
r.d.grimes@ieee.org (412) 963-9711

Women In Engineering – Chair: Jennifer Ploskina
jenniferLploskina@eaton.com

Committees

Consultants Network

Professional/Career Activities (PACE)
Chair: Joe Kalasky, P.E. (see above)

Student Activities – Rajiv Garg, rajivg@computer.org

Membership Development – Karl Muller,
karlmuller@compuserve.com

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

2008 PES General Meeting Technical Program Chair – Dr. Kalyan Sen (Kal) senkk@ieee.org (724) 696-1611; General Chair - Dave Vaglia (see above)

• *Power Quality Tutorial*

Speakers:	Dan Carnovale, Manager Power Quality Solutions, Eaton Corp;	
	Tom Dionise, Senior Power Systems Engineer, Eaton Corp.	
Date:	Saturday, June 7, 2008	
Time:	Registration – 7:30 AM with coffee and donuts,	
Tutorial:	8:00 AM to 4:00 PM, Lunch from 12:00 to 1:00	
Place:	Eaton Corp., 130 Commonwealth Dr., Warrendale, PA	
Cost:	IEEE Members	$50.00
	Non-Members	$75.00
	Students	$25.00
Sponsors:	Power Engineering Society/Industry Applications Society	
RSVP:	**Required by May 29, 2008. Registration limited to 24 people.**	

For more information, contact Andy Novotny at andrewnovotny@ieee.org or 412-963-5510. Please make registration checks payable to IEEE Pittsburgh Section and mail to Andrew Novotny, 514 Price Avenue, North Braddock, PA 15104.

Abstract: This Tutorial will be held at the 6,000 sq. ft. Eaton Power Quality Experience Center and Laboratory where a full scale power system will be used to demonstrate and test common power quality problems and solutions. Students will be given theory and a chance to see the theory used in real applications demonstrating the effects of power surges, interruptions, sags, harmonics and power factor on real systems. The types of power systems present include: Commercial Power, Industrial Power, Data Center Power and Residential Power. A mix of short classroom presentations combined with several actual demonstrations in Eaton's Power Quality Experience Center and Lab will give the students a better understanding of the power quality issues and their available solutions.

***Directions to Eaton*:** From downtown Pittsburgh take I-279 North for 13 miles and merge into I-79 North. After 4 miles, Exit I-79 North at Exit 75, Warrendale. At the traffic light at the end of the exit ramp, turn left onto Warrendale-Bayne Rd. Turn right at the Park N Ride onto Brush Creek Rd. At the second traffic light at the intersection with Thorn Hill Rd, Brush Creek Rd becomes Commonwealth Dr. Continue on Commonwealth for about 0.1 mile, and then turn left into 130 Commonwealth Dr.

• *Expanded Tutorial Offering*

What: Technical Tutorials Covering a Variety of Power Engineering Topics

Why: A Special Offer in Conjunction with the 2008 PES General Meeting

Who: For IEEE Pittsburgh Section Members Only

Where: Pittsburgh, PA at the David Lawrence Convention Center

When: July 20-24, 2008

The IEEE PES is holding a General Meeting in Pittsburgh from July 20-24, 2008 at the David Lawrence Convention Center. Eight technical tutorials will be offered covering a variety of power engineering topics (listed below) with PDH credits issued by IEEE headquarters. Full details on CEU's, dates and descriptions are on the meeting website: http://ewh.ieee.org/cmte/PESGM08/. A special offer is being made to IEEE Pittsburgh Section members only to attend tutorials without registering for the meeting. Click here to see detailed course descriptions: http://ewh.ieee.org/r2/pittsburgh/Extended_Tutorial_PES_GM_Article.pdf

If you DO NOT plan to attend the General Meeting but are interested in taking any tutorials, please fill out the registration form below and send it with payment as indicated. If you DO plan to register for and attend the General Meeting and will attend a tutorial, please utilize the PES meeting website to register on-line for tutorials and DO NOT use the registration form shown below. Contact Bob Slebodnik with any questions on the tutorials at rslebod@alleghenypower.com

Also, "Power Systems Courses for Power Professional" by IEEE PES is being co-located with the General Meeting. It is for those in non-technical positions in the power field such as: policy makers, marketers, utility commissions, media, PR, legal, consumer groups, purchasing, and management. Please help market this course to those that may benefit by directing them to the meeting website noted above for details.

Registration Form for Expanded Tutorial Offering

Class size is limited by the meeting rooms available, so register early to ensure your participation.

Note: All registration fees below will go by $25 up after June 24th.

Fill out this registration form and mail with a check made payable to "IEEE Pittsburgh Section" to:

Jace Cochrane, PE
1105 Grandview Ave
Pittsburgh PA 15211

Name: _____
Address: _____
Phone Number: _____
E-mail Address: _____

_____ T1 – Probabilistic T & D System Reliability Planning	$ 225
_____ T2 – Distribution Automation	$ 225
_____ T3 – Understanding Power Electronics in Contemporary Power Systems	$ 175
_____ T4 – Power Electronics: Power Factor & Harmonics, VF Motors & Drives	$ 225
_____ T5 – Wind Generator Modeling and Controls	$ 225
_____ T6 – Static VAR Compensators	$ 225
_____ T7 – Lightning Protection Technologies and Applications	$ 225
_____ T8 – Design & Application of Power Circuit Breakers	$ 225

Total $_____

- ***Career Survival for Engineers and Scientists in the 21st Century***

Date:	Saturday, July 19, 2008	
Time:	Registration – 7:30 AM with coffee and donuts,	
Workshop:	8:00 AM to 4:00 PM, Lunch included from 12:00 to 1:00	
Place:	Downtown area	
Cost:	IEEE Members	$25.00
	Non-Members	$50.00
	Unemployed	$15.00
Sponsors:	Power Engineering Society/Industry Applications Society, IEEE Pittsburgh Section	
RSVP:	**Required -** For more information, contact Andy Novotny at andrewnovotny@ieee.org or Work - 412-963-5510, Home – 412-351-4954. Please make registration checks payable to IEEE Pittsburgh Section and mail to Andrew Novotny, 514 Price Avenue, North Braddock, PA 15104.	

The Power Engineering Society and Industry Applications Society of the IEEE Pittsburgh Section is planning to have a 1-day career management seminar developed by the IEEE-USA Career & Workforce Policy Committee in cooperation with the IEEE-USA Employment and Career Services Committee on July 19, 2008, the Saturday before the PES General Meeting in Pittsburgh. Members of these two committees will be presenting on the topics below.

The goal of this seminar is to show you how to prepare yourself to manage or run your career in this era of globalization and selective hiring. Some topics to be discussed by the speakers include:

- Changes in the job market
- Requirements of the job market and how you relate to the market
- Adapting to new workplace
- Knowing personal weaknesses and strengths
- Starting a personal career plan, values statement and branding
- New methods of job searching
- Understanding the interview process
- How to use IEEE resources to help yourself to try new innovative job searches

If you are interested in enhancing your career by empowering yourself to work with management and human resources to innovate your own career in the 21st century, this is for you. The location will be in the July Bulletin.

- ***Advances in HVDC Technology as applied to the Pacific HVDC Intertie***

Speaker: Wayne Litzenberger, IEEE Life Fellow, IEEE Distinguished Lecturer
Retired from Bonneville Power Administration
Date: Thursday, July 24, 2008
Time: Social 6:30 PM, Program 7:00 PM
Place: Westinghouse Energy Center
RSVP: Dr. Kal Sen, P.E., senkk@ieee.org or 724-696-1611 by July 17, 2008
Organizers: Power Engineering Society/Industrial Applications Society.

The development of the Pacific HVDC Intertie (PDCI) is traced from inception in the 1960s to present day. The PDCI has undergone a number of changes and upgrades over the 36 years since its construction. The changes in the PDCI mirror the advances in HVDC technology over that period.

Wayne Litzenberger, a Life Fellow of the IEEE now serves as a consultant in HVDC and FACTS. He joined Bonneville Power Administration in 1968 and retired in 2007, having served primarily as a Project Engineer and Project Manager in HVDC and FACTS projects at BPA. Wayne has been very active in the Power Engineering Society, T&D and Substations Committees. He has contributed to several IEEE standards and is the author of numerous technical papers. From 2002 to 2004 he was the US representative to the CIGRE Study Committee B4 (HVDC and FACTS). He has participated in HVDC and FACTS panel sessions on a number of occasions discussing the history of HVDC and projects related to the Pacific HVDC Intertie.

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 in 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.

• *Simulation of Wind Turbine Generators*

Speaker: Dr. Thomas E. McDermott, P.E., EnerNex Corporation
Date: Thursday, August 7, 2008
Time: Social 6:30 PM, Program 7:00 PM
Place: Westinghouse Energy Center
RSVP: Dr. Kal Sen, P.E., senkk@ieee.org or 724-696-1611 by July 31, 2008
Organizers: Power Engineering Society/Industrial Applications Society.

Modern wind turbine generators (WTG) incorporate power electronic converters with advanced control and protection systems, to a degree that makes them behave unlike a traditional synchronous or induction generator. Wind plant design and integration studies require new models that handle these complexities. The presentation will first review the main components of a WTG, including the blade pitch controls, startup and shutdown, protection systems, and four general types of electrical interface:

- Type 1 – induction generator with capacitor steps
- Type 2 – induction generator with variable wound rotor resistance
- Type 3 – doubly-fed induction generator
- Type 4 – full power electronic interface

Simulation of these four types will then be illustrated using an electromagnetic transients program. Models for classical short-circuit, load flow, and stability programs will also be discussed and illustrated. This is an evolving area, with vendor concerns over proprietary data, user concerns over model benchmarking, and IEEE efforts to develop generic models all playing active roles. A customized, web-based simulator for distributed wind applications will also be presented with a case study, including voltage flicker, voltage control, and overcurrent protection design for a 1.65-MW wind turbine connected to a 12.47-kV distribution feeder.

Thomas E. McDermott (SM 1990) is a Senior Consulting Engineer with EnerNex, currently working in wind generation, distribution systems, lightning protection, custom software development and electromagnetic transient studies. He is currently Vice Chairman of the Distribution System Analysis Subcommittee, a U.S. delegate to IEC TC 57 Working Group 14, and has previously chaired the Pittsburgh Section IEEE and the Working Group on Estimating Lightning Performance of Transmission Lines. Tom is a registered professional engineer in Pennsylvania. He has a B. S. and M. Eng. in Electric Power from Rensselaer, and a Ph.D. in Electrical Engineering from Virginia Tech. In 2001, he presented a tutorial on "Power Electronics Simulation with SPICE" for the Pittsburgh Section, with an update in 2004. This presentation will be an extension of those earlier tutorials.

• *Creating Winning Products and Services through Ethnography and the Voice of The Customer*

Speaker: Julie Gulick and Dr. Ned Uber, MEDRAD
Date: Thursday, August 21, 2008
Time: Social 6:30 PM, Program 7:00 PM
Place: Westinghouse Energy Center
RSVP: Dr. Kal Sen, P.E., senkk@ieee.org or 724-696-1611 by August 14, 2008
Organizers: Power Engineering Society/Industrial Applications Society.

Innovation and invention come from having engineers observe the customers in the customers' world, from uncovering problems that the customers cannot yet verbalize. When clever people watch customers struggle in their day to day work, the engineers can then develop new solutions that become blockbuster products or services. Come see how Medrad uses Ethnography and other tools to strive to continue their 25 year growth rate of 16% per year.

Speakers:

Julie Gulick is a Product Planner in the Marketing Department of the Molecular Imaging Group at MEDRAD leading product definition of new injector products via voice of the customer (including ethnographic research, interviewing, and surveying customers). Over her 15+ year career in the medical device industry she has held positions as design engineer, sales and marketing manager, product manager and product planner. Julie has B.S. and M.S. degrees in Engineering from Penn State University and an MBA from the University of Pittsburgh.

Dr. Ned Uber is a MEDRAD Fellow in the Corporate Innovations Department. In this role, Ned works with others to develop and patent ideas that represent entirely new product lines for Medrad. He provides technical expertise, team facilitation, and conducts ethnographic research for projects throughout the company. Ned has 25 years of experience in product development and research. He is an inventor on 40+ issued patents, with several more under examination. Dr. Uber has B.S., M.S., and Ph.D. degrees in Electrical Engineering from Carnegie Mellon University.

• *Raise Your Company's Profile*

Show your supervisor that you are not just an excellent engineer, but you have business acumen as well. Point out the excellent opportunity to advertise your company when the Power Engineering Society's General Meeting is held in Pittsburgh for five days in July, 2008. Over 1800 electric power professionals from around the world are expected to attend. The group will include manufacturers, consultants, electric utility employees, and more. Your company could provide pens or post-its with your logo for each participant, support a bus taking participants to a technical tour, advertise on-line at the General Meeting web site, or do all three and more. Prices start at $750. To learn the details, go to http://ewh.ieee.org/cmte/PESGM08 and click on *Raise Your Company's Profile* in the left column. There you'll find a complete letter that you can give to your supervisor or your company's marketing department. It details all the various opportunities available for supporting the General Meeting while advertising your company.

Your company's advertising also has the potential to benefit the IEEE Pittsburgh Section. The Pittsburgh Chapter of PES/IAS will receive up to $7500 if the General Meeting's income exceeds its expenses by a sufficient amount. So do it for you and for your company and for IEEE Pittsburgh. If you have questions, email Jace Cochrane at jacejc@pghmail.com.

• *Wireless Communication Engineering Technologies Certification Program*

The Institute of Electrical & Electronics Engineers Communications Society (IEEE ComSoc) has launched a new program to certify the practical knowledge and skills of wireless communications professionals.

The IEEE Wireless Communication Engineering Technologies (IEEE WCET) Certification Program has been specifically designed by IEEE ComSoc to address the worldwide wireless industry's growing need for communications professionals with practical problem-solving skills in real-world situations. With this certification, professionals will be able to clearly demonstrate their knowledge of wireless communications technologies to employers or change engineering fields as new opportunities arise in the wireless industry.

To qualify for the IEEE WCET designation, candidates with a bachelor's degree from an accredited institution and at least three years of wireless engineering experience must pass a detailed comprehensive examination developed by more than 100 industry experts and experienced wireless practitioners. Administered on computer for the fee of $500, the first testing period is scheduled for 22 September 2008 – 10 October 2008 at more than 500 testing sites located in 75 countries with the next testing period slated for March 2009. Online applications will be accepted beginning in mid-June.

For more information on the IEEE Wireless Communication Engineering Technologies Certification Program (IEEE WCET) contact: Jean Niblett, IEEE Communications Society, 3 Park Avenue, New York, NY 10016. Phone: (212) 705-8913.
E-mail: j.niblett@comsoc.org or visit www.ieee-wcet.org.

• *Call for Fellow Nominations*

Nominations are being accepted for the IEEE Fellows class of 2010. The rank of IEEE Fellow is the institute's highest member grade, bestowed on an IEEE Senior Member who has had an extraordinary record of accomplishments in any of the IEEE fields of interest. The deadline for nominations is 1 March 2009. Senior Members can be nominated in one of four categories: application engineer/practitioner, research engineer/scientist, educator, or technical leader.

The Fellows Web pages contain information regarding the history of the IEEE Fellows program, the nomination process, access to the Fellows Nomination Kit, lists of Fellows who are eligible to be references and more about the Fellow program. Please visit the Fellows website at http:/www.ieee.org/fellows.

• *IEEE and SSIT at Earth Day Celebration*

SSIT Treasurer Bob Watt and Chair Joe Kalasky organize an IEEE-SSIT booth at the annual Westmoreland County Earth Day Celebration held at St. Vincent's College, Latrobe, PA on Saturday, April 19. IEEE and SSIT literature were dispersed at the event which closely ties to a "Social Implication of Technology".

• *Neural Networks - Part II*

Neural Networks and Control Problems in a Robotic Field

As stated earlier, the neural network can be a applied to control fields. We can apply neural networks to the following robotic fields:

1. Position/trajectory control
2. Force control
3. Sensing and perception
4. Planning (path, trajectory, graph, task, etc.)

The neural network can give more intelligent control than conventional theories that cannot be applied to nonlinear dynamics, unknown dynamics and parameters of the environment, and others. The neural network approach tackles these difficult problems of system identification and control using its self-organizing capabilities. Click the link below to see full article:

http://ewh.ieee.org/r2/pittsburgh/Neural_Networks_3.pdf

2008 Calendar – Meetings of IEEE Pittsburgh Section

	Jan	Feb	Mar	Apr	May	June	July	August	Sept	Oct	Nov	Dec
Executive Committee	17 - 7pm Panera Bread Oakland	21 - 7pm Panera Bread Oakland	28 – 5:30pm UP Greensburg	17 - 7pm Panera Bread Oakland	22 - 7pm	19 - 7pm Panera Bread Oakland						
Section		16 Engineers Week table		24 History Dinner								
Communi-cations		1 Contention Resolution			8 VoIP							
Computer		16 Robot car race										
EMBS			20 *Neural Engineering*	3 - Sensor-motor 17 – Bio-mechanics								
EMCS					21 Test Guide							
PES/IAS	16 - AdCom 6:00 PM 23 - Why not nuclear	20 - AdCom 6PM Panera Penn Center 13 – Intell. Buildings 27 - Electric Vehicle	12 -Thermal Systems 12 -2008 PESGM Loc. mtg; 26 –Improb. Universe	2 Obtaining PE License 9 - 2008 PESGM LOC mtg	7 - July 2008 PESGM LOC mtg 8 - Eaton Tour; 22 - Nuclear	7 Tutorial 12-2008 PESGM Local mtg	9-loc. mtg 20-24 - PESGM 19- Career Survival 24 –HVDC Technology	7 Wind Turbines 21 Ethnography				
Magnetics			5 Nanomagnetic bits	10 - Radiation pressure 24 - Spintronic								
Robotics												
Sig. Proc.												
Social Impl Technology			28 Utility Meter									
Upper Mon	28 Biomole. Detection Device	4 Radio Astronomy										
Women in Eng'ing	10 Inaugural Meeting											
Life Mem.												
GOLD												
PACE			28 Utility Meter									
Student Act												