

50th Anniversary Edition October 2003See us on the WEB at: www.ewh.ieee.org/r2/susquehanna**October Section Meeting****Aspects of the History of Bioelectricity and****Electrocardiography****Date:** Tuesday, October 14, 2003**Time:** Dinner 6:30 PM

Speaker 7:30 PM

Dinner & Program:Capital Union Building (2nd Floor)

Penn State Harrisburg

Dinner Cost: \$10 (Members/Guests/Retirees)

FREE (Students)

Speaker: David B. Geselowitz, PhDAlumni Professor Emeritus of
Bioengineering and Professor Emeritus of
Medicine

Pennsylvania State University

Contact: (by email if possible)

Stan Telson

TEL: 717-569-6579

E-mail: st@qspp.com**Contact By October 6 noon for Dinner and/or Program Reservations.**

Note: Dinner no-shows will be charged if not canceled by Monday, October 6 noon. Also, we cannot guarantee late dinner reservations.

50th Anniversary Celebration

The Susquehanna Section of the IEEE was formed on June 18, 1953. This year we are celebrating our 50th Anniversary and would like you to come and celebrate with us. The Section will receive an Anniversary Banner from IEEE and it would be great to have a packed house. We have a distinguished speaker on Bioengineering to add to the evening. Come and say hello as we embark on our next 50 years.

Our Honored Guest Speaker

David B. Geselowitz is Distinguished Alumni Professor Emeritus of Bioengineering and Professor Emeritus of Medicine at the Pennsylvania State University. He is a Life Fellow of IEEE.

He was born in Philadelphia in 1930. He graduated from Central High School and the University of Pennsylvania

where he received BS, MS and PhD degrees in Electrical Engineering. His doctoral dissertation dealt with theoretical approaches to the electrocardiogram. A paper reporting this work became a Science Citation Classic.

Following his graduation he remained on the faculty of the University of Pennsylvania. In 1971 he moved to the Pennsylvania State University where he established a graduate program in Bioengineering. His major contributions are in theoretical electrocardiology. With his student Walter T Miller he developed the Miller-Geselowitz model which relates cardiac sources to the electrocardiogram. He also developed the theory for magnetic fields generated by the heart and the brain, which is used extensively.

He helped found the International Society for Computerized Electrocardiography. He was one of the first three engineers elected a Fellow of the American College of Cardiology. He is a Life Fellow of IEEE as well as the American Association for the Advancement of Science and a founding fellow of the American Institute for Medical and Biological Engineering. He was elected to the National Academy of Engineering in 1989. He was editor of the IEEE Transactions on Biomedical Engineering from 1967-72. He received the Career Achievement Award of the IEEE EMBS in 1985. In 1965-66 he was visiting Assistant Professor of Electrical Engineering at MIT. In 1978-79 he was a John Simon Guggenheim Fellow at Duke University where he was visiting Professor of Bioengineering, and worked in Pediatric Cardiology. In 1987-88 he was visiting Professor of Medicine at the University of Oklahoma working in the electrocardiology laboratory. In 1994 he was visiting Professor of Mathematics and Statistics at the University of New Mexico.

He delivered the keynote address at the Canadian Medical and Biological Engineering Conference in Halifax in 1987, and in 1992 he presented the Ueda Memorial Lecture at the Japanese Society of Electrocardiology in Tokyo.

He was involved in the development of standards for electrocardiographs and electric safety in medical instruments through the Committee on Electrocardiography of the American Heart Association. He served as chairman of this committee and was the first non-physician in this position from 1976-1981. He served on the Circulatory Systems Devices Panel of the Food and Drug Administration from 1983 to 1988.

Aspects of the History of Bioelectricity and Electrocardiography

Dr. David Geselowitz provided the following synopsis of his talk for the Section meeting:

The histories of bioelectricity, the physics of electricity, and electric technology, especially instrumentation, are intertwined. Nerve and muscle cells are electrically active. Pioneering work in electrophysiology was conducted by Galvani who studied the nerve and muscle of the frog leg. A challenge to Galvani's interpretation of his results by Volta led to the invention of the Voltaic pile, or battery. This year is the 150th anniversary of a monumental paper by Helmholtz in which he developed the laws governing the spread of currents in a volume conductor prompted by his study of nerve propagation.

Bioelectric signals are small and brief, and their measurement has provided a major challenge. The 19th and 20th centuries saw the development of more and more sophisticated instrumentation. This year marks the 101st anniversary of the invention of the string galvanometer by Einthoven. This device made clinical electrocardiography feasible. Einthoven presented a concept in which the heart was represented as a vector, and voltages measured across the limbs were the dot product of the heart vector and a "lead vector". Following World War II several biophysicists and electrical engineers put this concept on a firm physical basis. The introduction of the digital computer led to the use of sophisticated models for the propagation of the electric impulse in the heart and the resulting potentials on the skin. Interest in studies of firing patterns of neurons led to the invention of the personal computer.

Directions to Capital Union Building

The Capital Union Building is located right next to the Swatara Building at Penn State Harrisburg. Follow the directions below to get to the campus. As you enter the campus, the first building to come across on your right is the Capital Union Building. Parking can be done both in the Library parking lot and the parking lot between the Capital Union Building and the Swatara Building. The parking fee is one dollar. Use the self-service payment boxes at the entrances to the lot. Place your payment receipt on your dashboard. The directions, maps and even a picture of the Library can be found at

< <http://www.hbg.psu.edu/hbg/campusmap/>>.

The entrance to Penn State Harrisburg is located on PA 230, West of Middletown.

From PA Turnpike (I-76): Get off at exit 19. Follow PA 283 East toward the Harrisburg International Airport. Follow signs for the airport and the college. Before entering the airport complex, take the exit for PA 230. Turn left at the junction of

230. Proceed on 230 East approximately 1 mile. The college entrance is on the left.

From Lancaster and points East: Take Route 283 West toward Harrisburg. Follow signs for the airport and the college. Before entering the airport complex, take the exit for PA 230. Turn left at the junction of 230. Proceed on 230 East approximately 1 mile. The college entrance is on the left.

From Harrisburg and points North: Follow signs for Harrisburg International Airport/283 East. Take 283 East to the Harrisburg International Airport exit. Follow signs for the airport and the college. Before entering the airport complex, take the exit for PA 230. Turn left at the junction of 230. Proceed on 230 East approximately 1 mile. The college entrance is on the left.

Joint IEEE and IES Meeting

Program: "Lighting Control for Buildings & Tunnels", presented by Norm Dittmann, President of PLC Multipoint, Inc., Everett, WA at Penn State Harrisburg, Capital Union Building on Thursday, October 2, 2003(7:30-8:30 PM). The program will be preceded by a dinner. The cost for the dinner is \$16.00 (IEEE student members & all PSU students \$12.00 per person).

Please e-mail Don Strong at <dstrong@gfnet.com> by September 29 if you are planning to attend.

It's Time to Cast Your Ballot

Look for your IEEE Annual Election ballot to arrive this month in the mail. Besides the two candidates vying to become the 2004 IEEE President-Elect, 39 candidates are running in 19 races held in the various Divisions and Regions. Learn more at:

<http://www.theinstitute.ieee.org/inst_art.jsp?isno=09031&ar number=09031_9w.electionballots§ion=5>

To know more about the 2004 President-Elect Candidates, W. Cleon Anderson and Michael R. Lightner, read what they had to say about helping entrepreneurs, attracting industry support, and the state of the IEEE's finances at:

<http://www.theinstitute.ieee.org/inst_art.jsp?isno=09031&ar number=09031_9w.featuredebate§ion=4>

Online Courses Coming to IEEE Xplore

Looking to continue education but don't want to go to school? The answer is around the corner. Plans are under way for members and others with a technical bent to take short courses over the Internet through IEEE Xplore®, the IEEE's repository of published information from its journals, transactions, and proceedings. Read more about it at

<http://www.theinstitute.ieee.org/inst_art.jsp?isno=09031&ar number=09031_9w.newseducationxplore§ion=5>

IEEE Susquehanna Section Fall Meeting: 2004 Officer Nominations

Nominations for 2004 offices were made and accepted as follows during the September 16th planning meeting.

Officers:

Section Chair	Ed Simoncek
Vice Chair	Open
Secretary	Aldo Morales
Treasurer	Sedig Agil

Standing Committee Chairs and Members:

Program Committee	Bob Klinger David Sarraf Larry Brown
Newsletter Editor	Vittal Balasubramanian
Publisher	AB Shafaye
Webmaster	David Sarraf
Awards	Ernest Guenin
Central PA Eng. Rep.	Bob Klinger
Consultants Network	Stan Telson
Local Prof. Act.	Bob Klinger
PACE	Omid Ansary Larry Brown

Larry brown will lead the nominating committee to fill the Vice-Chair position.

Call for Award Nominees

The Central PA Engineers Week Council is looking for nominees for Engineer of the Year; Young Engineer of the Year; and Technical Achievement Award. The Engineer of the Year award must have PE license, Young Engineer must have PE or EIT, but neither is required for the Technical Achievement award. Member organizations (like our IEEE Section) can submit more than one candidate. Information and forms can be found on the web site www.cpewc.org and must be made before 28 Nov 2003, and must be endorsed by the member group.

Contact Bob Klinger at rklinger@attorneygeneral.gov if you have an IEEE candidate. Awards will be presented at the annual dinner in February 2004.

Upcoming Events

Tuesday, November 11

Tour of Electon Energy, Landisville

Tuesday, December 2

IEEE Speaker, "Five Policy Areas of IEEE"

Useful Information Column

Susquehanna Section Co-Chairs

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Q/A-C Column

Do you have any questions or comments? Call, email or FAX it to our Co-Chairs at the above addresses.

Newsletter Mailing or WEB Page Notification

If you do not receive your Newsletter, please notify AB Shafaye mes121@psu.edu or Vittal Balasubramanian b.vittal@ieee.org. If you would like to convert from paper copy mailing of the Newsletter to WEB page delivery, please notify AB Shafaye, who serves as our Publisher.

Address Changes and Updates

There are several ways to correct member information with IEEE. They update their directory from the information you provide, and pass the changes to us monthly. Keeping your address information up to date will ensure accurate mailings.

- There is a WEB based interactive "change of address" form at: <http://services1.ieee.org/membersvc/coa/intro.htm>
- You can send an email to: address-changes@ieee.org
- Call IEEE Member Services at 1-800-678-IEEE
- Mail changes to
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- FAX changes to 1-732-981-9667

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