



Almanack



<http://sites.ieee.org/philadelphia/>

PHILADELPHIA SECTION of the IEEE

Counties of Membership: Pennsylvania: Bucks, Chester, Delaware, Montgomery and Philadelphia.
New Jersey: Burlington, Camden and Gloucester

ALMANACK

- Published ten times a year, January through June, a Summer issue covering (July, August) and September through December.

*Inputs for the October Issue are due by:
Friday, September 23rd, 2016*

IEEE SECTION NIGHT

- Meetings are conducted eight times per year on the 3rd Tuesday of the Month, January through May and September through November.

ADMINISTRATIVE COMMITTEE

- ADCOM meetings are conducted on the 2nd Tuesday of the month: January through June and September through December. Members are welcome to attend the meeting only. Reserve a seat by calling the office the Friday before the meeting (*Phone: 484-270-5136*)

September

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				1	2	3
4	5	6	7	8	9	10
			*Temple Univ. DL Program			
11	12	13	14	15	16	17
		*ADCOM	* Introduction to Microgrids			
18	19	20	21	22	23	24
	*Sarnoff Symposium	*Section Night *Sarnoff Symp.	*Sarnoff Symposium		*Almanack Oct. Inputs Cutoff	
25	26	27	28	29	30	

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IEEE SECTION NIGHT

Philadelphia Section Meeting

Tuesday, Sep. 20, 2016

Note: In the event of bad weather please call the Sheraton after 1:00 PM the day of the meeting: 215-387-8000. Ask the front desk if the meeting has been canceled.

**Tuesday, September 20, 2016.
Dinner at 6:00 PM,
First Speaker at 7:00 PM.**

**Sheraton University City,
3549 Chestnut St,
Philadelphia, PA 19104,
(215) 387-8000**

Meal Cost: \$25.00 (students \$15.00).

The meal cost is higher but it is subsidized by the IEEE Philadelphia Section.

You can attend the talks only (with no dinner) for free, however, we ask that you register.

[Registration Link](#)

Parking is paid by the IEEE Philadelphia Section, make sure you have your parking ticket stamped at the meeting.

First Talk

Legal Issues Involving Open Source Software

Michael A. Fisher, Ph.D.

Deckert LLP

Abstract: Using open source code has become a popular way to save time and money in software development projects. In many cases, open source can give you free functionality, access to a knowledgeable community of fellow programmers, and stability and perfor-

mance as good as, or possibly even better than, that of commercially available code. But just because the code is free does not mean that it is not subject to a license. Hidden dangers lurk for those who incorporate open source code into their projects without understanding what they're agreeing to. Some common licenses such as the GPL have extreme provisions and implications. This talk will review some of the advantages and disadvantages of open source, common open source licenses and their key provisions, and approaches for avoiding the pitfalls of some of those licenses.



Biography: Michael A. Fisher, Ph.D. is an intellectual property attorney who draws on his background in electrical engineering to represent medical device, electronics, computer, semiconductor, and other clients in complex patent and trade secret litigation matters. He also devotes part of his practice to patent licensing, patent counseling, and software copyright matters. Prior to his legal career, Dr. Fisher worked as a research and development engineer in the areas of solid state electronics, equipment-control software, and micromechanical devices.



SECOND TALK

Google's Page Rank and Beyond, the Science of Search Engine Rankings

**Michael A. Mayor, MSE, P.E.
President and CTO
Systems-Science PLLC**

Abstract: This presentation covers the science of search engine rankings developed by Google. This is a multinational, publicly traded, company very well known in the Internet, built around the hugely successful search engine. In fact, the search engine and particularly the mathematics behind it, is one of the reasons of Google's huge success in the Internet arena. Search Engines have become an integral part of handling Big Data where searches must be conducted, preferably in seconds, over millions of entries. This talk addresses first a brief history of Information Retrieval and the early search engines, like Boolean, Vector Space, Probabilistic and Meta Search Engines and subsequently goes into an in depth explanation of the search process. The lecture continues with an explanation of the Page Ranking method and the Mathematics of Google's PageRank. Finally, I present an overview of the massive Computer Hardware, i.e. server farms, which make possible a practical, real-time, implementation of the PageRank algorithms.

Biography: Mr. Mayor is currently an independent consultant providing Telecommunications Systems Engineering Services in the area of Secure wire-line and wireless Communications Networks. His consulting services extend to Digital Signal Processing Algorithm development, RF propagation analysis and applying Model Based Systems Engineering Design. Formerly, he was Vice President, Advanced Technology Research, at ITT Defense Electronics. In this capacity he conducted Research and Directed the Development of a wide range of secure communications systems and their components, including Radio Frequency Transceivers, Software Defined and Cognitive Radio Systems, Digital Receivers, Digital Signal Processing algorithms and Precision Emitter Geolocation Systems. He authored six patents in the areas of Spread Spectrum Communications and Digital Instrumentation.



Mr. Mayor is a Licensed Professional Engineer and holds an MSE from the Moore School of EE, University of Pennsylvania. He is a member of the National Society of Professional Engineers (NSPE), and a Senior Member of the Institute of Electrical and Electronic Engineers (IEEE).



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SECTION CHAIR'S MESSAGE



Philip M Gonski, P.E.
IEEE Philadelphia Section Chair

I trust everyone has enjoyed the summer, despite the heat levels.

By now, all members should have received the ballot information for the IEEE Elections, as well as an important vote on the bylaws and constitution of the IEEE.

I urge all members to carefully look at both sides pertaining to the IEEE Constitutional Amendment, as it contains details which will significantly change the

governance and direction of the organization, as well as the chapters and societies.

Information pertaining to the changes can be found here:

IEEE Constitutional Amendment Opposition and Rebuttals

More detailed opposition statements can be found here:

IEEE Constitutional Amendment Detailed Opposition

While I have my own opinion in regards to this amendment, it is up to each member to be sure they review the issue at hand and cast their vote accordingly.



Drexel University College of Engineering and the IEEE Signal Processing Society Chapter Present

When Power Meets Multimedia

By
Dr. Min Wu
SPS Distinguished Lecturer

Where: Drexel University, Bossone Bldg. #302

When: Tuesday, October 18, at 3:00 PM

Abstract: Osama bin Laden's video propaganda prompted numerous information forensic questions: given a video under question, when and where was it shot? Was the sound track captured together at the same time/location as the visual, or superimposed later? Similar questions about the time, location, and integrity of multimedia and other sensor recordings are important to provide evidence and trust in journalism, crime solving, infrastructure monitoring, and other informational operations.

Although the R&D on power grid and multimedia signal processing did not seem to cross paths, an emerging line of research toward addressing the above questions exploits novel signatures induced by the power network. An exam-

ple is the small random-like fluctuations of the electricity frequency known as the Electric Network Frequency (ENF), owing to the dynamic control process to match the electricity supplies with the demands in the grid. These signatures reflect the attributes and conditions of the power grid and become naturally "embedded" into various types of sensing signals. They carry time and location information and may facilitate integrity verification of the primary sensing data.

This talk will provide an overview of recent information forensics research on ENF carried out by our Media and Security Team (MAST) at University of Maryland, and discuss some on-going and open research issues.



Biography: Dr. Min Wu is a Professor of Electrical and Computer Engineering and a Distinguished Scholar-Teacher at the University of Maryland, College Park. She received her Ph.D. degree in electrical engineering from Princeton University in 2001. At UMD, she leads the Media and Security Team (MAST), with main research interests on information security and forensics and multimedia signal processing. Her research and education have been recognized by a NSF CAREER award, a TR100 Young Innovator Award from



the MIT Technology Review, an ONR Young Investigator Award, a Computer World "40 Under 40" IT Innovator Award, University of Maryland Invention of the Year Awards, an IEEE Mac Van Valkenburg Early Career Early Career Teaching Award, and several paper awards from IEEE SPS, ACM, and EURASIP. She was elected IEEE Fellow for contributions to multimedia security and forensics. Dr. Wu chaired the IEEE Technical Committee on Information Forensics and Security, and has served as Vice President - Finance of the IEEE Signal Processing Society and Founding Chief Editor of the IEEE SigPort initiative. Currently, she is serving as Editor-in-Chief of the IEEE Signal Processing Magazine and an IEEE Distinguished Lecturer.

Dr. Min URL: <http://www.ece.umd.edu/~minwu/>

Registration Link: [Registration Link](#)

Contact: Dr. Gail Rosen
Co-Chair Signal Processing Society Chapter
Associate Professor, Electrical and Computer Engineering
Drexel University
gail.l.rosen@gmail.com

Michael Mayor, P.E.
Co-Chair Signal Processing Society Chapter
Director, IEEE Philadelphia Section Communications
michael.mayor.pe@ieee.org



Fall 2016 Distinguished Lecture Series

IEEE Philadelphia Section Computer Chapter Department of
Computer and Information Sciences Temple University

***SoftAir: Software-Defined Networking and Network Function
Virtualization Solutions for 5G Cellular Systems***

Dr. Ian F. Akyildiz
Georgia Institute of Technology

Wednesday, September 7, 11AM – 12 PM, TECH Center 111

Refreshments will be provided

Questions Contact: boji@temple.edu

Abstract: SoftAir is a new wireless software - defined architecture with network function virtualization (NFV) solutions for 5G cellular systems. The concept of SDN has been proposed to efficiently create centralized network abstraction with the provisioning of programmability over the entire network. Moreover, the complementary concept of NFV has been further proposed to effectively separate the abstraction of functionalities from the hardware, such as decoupling the data forwarding plane from the control plane. These two concepts bring the SoftAir architecture that provides cellular networks with the needed flexibility to

evolve and adapt according to the ever-changing network context. Three network management tools are built upon SoftAir. First, an in-band control traffic balancing for a centralized controller is proposed to find the optimal control traffic forwarding paths for each switch/BS in such a way the average control traffic delay in the entire network is minimized. Second, a traffic-driven optimal network planning is developed for multi-controller placement that jointly optimizes controller placement and control traffic forwarding paths so that the required controllers and the control traffic delay are minimized simultaneously. Third, two delay-based



hypervisors (schedulers) are proposed to achieve high system performance with hybrid light-tailed and heavy-tailed traffic flows. Also dynamic BS formation are presented to solve NLOS problem in 5G millimeter-wave systems. Moreover, a software-defined massive MIMO scheme is developed via 5G spectral-efficient controller.

Biography: Professor I. F. AKYILDIZ is the Ken Byers Chair Professor with the School of Electrical and Computer Engineering, Georgia Institute of Technology, Director of the Broadband Wireless Networking Laboratory and Chair of the Telecommunications Group. He is the Editor-in-Chief of Computer

Networks (Elsevier) Journal since 2000, the founding Editor-in-Chiefs of the Ad Hoc Networks Journal (2003), Physical Communication (PHYCOM) Journal (2008), and Nano Communication Networks (NANOCOMNET) Journal (2010) all published by Elsevier. Dr. Akyildiz is an IEEE FELLOW (1996) and an ACM FELLOW (1997). He received numerous awards from IEEE and ACM. Due to Google scholar, his papers received over 81+K citations and his h-index is 97 as of August 2016. His current research interests are in Nano-Scale Communications, 5 G Cellular Systems, Software Defined Networking and Wireless Sensor Networks in Challenged Environments.



The 37th IEEE Sarnoff Symposium 2016

New Jersey Institute of Technology Conference Center
Newark, New Jersey, USA
September 19-21, 2016

Sponsored by IEEE Princeton/Central Jersey Section (IEEE Region 1)

<http://sites.ieee.org/SARNOFF2016>

We are pleased to announce that IEEE Sarnoff Symposium 2016 will be held at New Jersey Institute of Technology (NJIT), September 19-21, 2016. The advent of Software Defined Networking (SDN) and Network Function Virtualization (NFV) has introduced a paradigm shift in telecom and networking. Internet of Everything (IoE) with concomitant advances in Wireless, Wireline and Data Center network technologies have fostered ubiquitous network connectivity. The entire networking and telecom ecosystem comprising of Original Equipment Manufacturers (OEMs), Silicon Providers, Independent Software Vendors (ISVs), System Integrators and Service Providers has been impacted by this change. Information and Communication Technologies (ICT) are intersecting in unique ways to provide value added services to various vertical industries such as Energy and Utilities, Healthcare, Transportation, Retail, Media and Entertainment, Finance and Public Safety.

While keeping the focus on research in core network technologies from academia and inviting submissions from ecosystem stakeholders, IEEE Sarnoff Symposium 2016 will also provide the platform to cover the perspectives of vertical industries. Keeping this in mind, our Call for Papers encompasses a wide variety of topics covering theory, application and practice and has a broad appeal for researchers and practitioners alike.

Through a series of keynote talks, invited talks, technical paper presentations, panel sessions, tutorial sessions, industry exhibits and poster sessions, IEEE Sarnoff Symposium will bring together leading researchers and practitioners in academia and industry to deliberate, discuss and share findings on leading edge research, implementation experiences and challenges.



A&A Review Panel met in Philadelphia

By Peter Silverberg

The A&A Review Panel Meeting was held, Saturday, 25 June at Sofitel Philadelphia. Over 400 applications were reviewed between 8 am and 1 pm. Approval was 372. The panel is the method by which approves advancement from Member to Senior Member. Every application must have two signed approvals from Senior Members or Fellows. Panels rotate into cities in the Regions. Philadelphia has not had a turn in over five years. Another panel meets July 23 in Ottawa, Canada.

These volunteers from the section gave up a warm Saturday to do these reviews. Thank you.

- Fauzia Ahmad
- W. Cassel
- Adam Drobot
- Shivayogi Vishwanath Hiremath
- Joseph Kujawski
- Irvin Lichtenstein
- Jeremy Lin
- Bijan Mobasseri
- Joseph Orr
- Sangho Shin
- Peter Silverberg

- Navaratnam Suganthan
- Herbert Thal
- James R Thompson
- Chonggang Wang
- Bryan Weaver
- Paul White

From this section there were two persons who advanced. We congratulate: Desmond Lun and Jonathan Moore. Desmond Lun is in Information Theory Society. Jonathan Moore is in the Power & Energy Society and Communications Society.

Results of the July 23 session in Ottawa.

Congratulations to:

- Donald Waschenko (also in Antennas and Propagation Society and Microwave theory and Techniques Society) and
- Srinivasa Naeasimhan

who were elevated to Senior Member.

The next panel meets September 10 in Hong Kong. Results in October.



IEEE Life Member Tour (Visit Summary on Next Page)

PSEG Mercer Generating Station

June 14, 2016

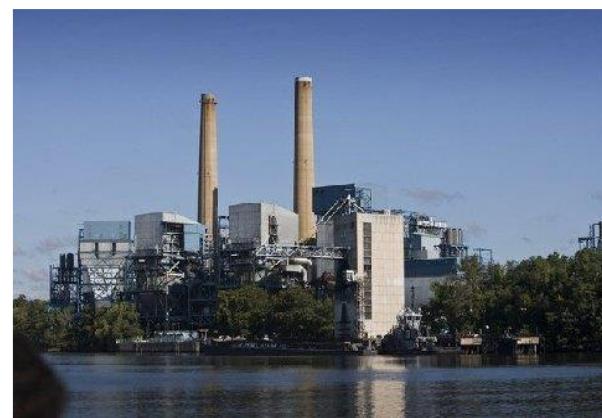
By *M. Robert Paglee, P.E. (Ret.), IEEE LM*



The Life Member Group, headed by Merrill Buckley, sponsored a tour of the PSEG Mercer Generating Station, which was held on June 14, 2016 at 2:00 p.m. The large coal-burning facility was upgraded in recent years with advanced technology pollution controls, creating an example that demonstrates what can be achieved.

The Mercer Generating Station of PSEG Power LLC is capable of generating 648 MW of electricity by utilizing steam turbine generators. Steam is produced by two coal-fired natural circulation boilers. Although these boilers are capable of burning natural gas, the primary fuel is bituminous

coal. The two steam units have similar equipment supporting each unit, including coal scrubbers, electrostatic precipitators, selective catalytic reduction and flue gas desulfurization, boilers, generators, and mechanical support equipment. ([Visit Summary - next page](#)).





PSEG Mercer Generating Station - Visit Summary

By M. Robert Paglee, P.E. (Ret.), IEEE LM

On June 14, the IEEE Life Member Group headed by Merrill Buckley toured the PSEG Mercer Generating Station. The group photo at right (1st from the top) shows the attendees in Mercer's Conference Room, including PSEG Mercer's Technical Manager Stephen Rudolph seated at far left in the second row.

Group Photo Below: Wearing a brown shirt, Merrill Buckley is seated in the front row (third from the right); Bob Paglee, who arranged the tour is seated at Merrill's left side wearing a green shirt. PSEG Mercer's Technical Man-

ager, Stephen Rudolph is seated at far left in the second row.

The photo was taken by Mark Schwartzkopf, Mercer's Manager of Fossil Compliance and Programs, who arranged the tour and presented an interesting computer-aided photographic overview of the Generating Station.

Following that presentation, the attendees were divided into two groups for touring the Generating Station, one group headed by Mr. Schwartzkopf, the other by electrical engineer Steven Rudolph. Photos were taken by Bob Paglee during the tour.





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Original Control Console – Analog Metering and Controls



New Control Console – Digital Displays and Control Mouse



One of Four Steam Turbine Generators



Rooftop View: 230KV Three Phase Output Lines, Transformer Substation (below at left), Coal Fuel Conveyor Tower (at center right)



Conowingo Dam Hydroelectric Generating Station

Facts:

Generation capacity: 572 MW;

Number of turbines: 11

On May 19th, the Philadelphia PES/IAS chapter toured Conowingo Dam Hydroelectric Generating Station. 39 IEEE members and their guests attended. The station is located on the Susquehanna River five miles south of the Pennsylvania border and owned and operated by Exelon Power.

The tour started with an introduction to the area's environmental resources which includes an active bald eagle habitat. Also, the river is a fish migration route from the Atlantic Ocean through the Chesapeake Bay and up the Susquehanna River. Conowingo has an elevator which lifts fish nearly 100 feet and discharges over the dam so they can further migrate north into Pennsylvania and New York.

Inside the facility, the group watched a video on the plant's history and operation. Following, we broke into three groups and were treated to an extensive plant tour consisting of the turbine deck, sub turbine deck, fish lift super structure, dam gate control area and control room. In all, the tour lasted over two hours and offered a rare glimpse into the workings of this legacy hydroelectric power generating facility.

Some facts learned:

Conowingo Hydroelectric Generating Station is a run-of-the-river hydroelectric power plant owned and operated by Exelon Power, a business unit of Exelon Generation.

Constructed from 1926 to 1928, the station's seven turbines produced 252 megawatts (MW) and was the second largest hydroelectric project in the United States behind Niagara Falls. In 1964, 4 more turbines were added making the dam's capacity what it is today at 572 MW of electricity.

Because water is used to turn the turbines, Conowingo Dam Hydroelectric Generating Station can be used to "jump start" the electric distribution system in event of a PJM connection system failure making the station a critical facility in the power grid.

PES/IAS chapter meetings are dark this summer. Join us in September.





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Located on the Susquehanna River in northern Maryland, Conowingo has been providing electricity to the regional system since 1928. When constructed from 1926 to 1928, Conowingo was the largest power plant ever built and had

the largest turbines and generators to date. When the Conowingo Dam was completed in 1928, producing 252 megawatts (MW), it became the second largest hydroelectric project in the United States, behind Niagara Falls.



IEEE group receiving safety instructions and dam facts from Exelon tour guides.



Top side 220kV substation



Turbine deck – Smaller generator in forefront is for 480V station blackstart power



IEEE Philadelphia Section volunteers bring STEM learning to 10-13 year olds at Camp Adonai

Once again this summer for the second year in a row, a number of IEEE Philadelphia Section volunteers including Ken Paist, Ben Wolfgram, and Mark Soffa collaborated with folks from Enon Tabernacle Baptist Church in Northwest Philadelphia to bring STEM learning to 10-13 year olds at Camp Adonai. Ken from IEEE and James Montgomery from Enon taught “introduction to Computers and Electronics” using Arduino nano kits. Kids learned

to solder, wire simple circuits, and download and modify code.

Ben Wolfgram from IEEE and Tawnya Gee of Enon taught 3D printing to kids using Tinkercad freeware. Kids made small sculptures, rings and other designs on Tinkercad, and these designs were fabricated using 3D printers at NextFab in South Philadelphia. The last day of camp was a field trip to NextFab.

Nextfab [www.nextfab.com] is a collaborative makerspace with digital and traditional fabrication tools, 3D printers, CNC machines, classes, events, and professional consulting services.



Shown is grad student Jeevan Vemulapalli and Sean Bayley helping kids work with the 3D cad program.



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URBAN OUTFITTERS GLOBAL HEADQUARTERS TOUR WITH IEEE WOMEN IN ENGINEERING PHILADELPHIA

Urban Outfitters hosted Women for a tour of their HQ.



Urban Outfitters hosted IEEE Women in Engineering (WIE) at their HQ in the Philadelphia Navy Yard on Tuesday, June 28th from 3PM-4PM. The tour took members through multiple buildings at Urban's campus.

After the tour, members enjoyed a social hour at Urban's public cafeteria.

Look for more events in the future. For more details on how you can participate as a student or volunteer, contact Ben Wolfgram.

Ben.Wolfgram@weautomation.com

A special thank you to Urban for allowing us to tour their facility and use their space to host our event!

If you work in IT, Urban is hiring! Find out more here:

<http://www.urbn.com/work-with-us>

More Events to Come!

For more information contact:

Ben Wolfgram:

Ben.Wolfgram@weautomation.com



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Women in Engineering

Save the Date



WOMEN IN ENGINEERING

IEEE WIE FORUM ON
INSPIRING AND EMPOWERING WOMEN IN TECHNOLOGY

**WIE
FORUM
USA
EAST
2016**

1 - 3 DECEMBER 2016
BOSTON, MA

IEEE Women in Engineering
Wie

Call for papers open • See website for more information
SITES.IEEE.ORG/WIE-FORUM-USA-EAST

SAVE THE DATE

IEEE **IEEE★USA**



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Community Volunteering

By Peter Silverberg, Vice Chair

The IEEE Philadelphia Section has a large population, about 4000 members. It is the largest technical organization in the entire Delaware Valley. We seem to have poor participation in STEM activity. It would be nice to grow this. That is why I am writing about volunteering at the start of the school year.

There are many programs in our region that could use help from our well-educated members. We keep receiving pleas for help that, as far as I know, go unanswered. Of course, there is the possibility that the volunteers show up and there is no communication to the Section officers. That would be acceptable. We know that engineers do not seek publicity. We would be glad to print the information in the Almanack. It might have a snowball effect. What really worries me is no one is volunteering. That is sad.

There is a second side to this equation. We do not have a big list of volunteer opportunities. Our attempt to improve things leads to questions.

If you have useful answers, get information to:

Michael Mayor, Communications Chair

michael.mayor.pe@ieee.org

or

Peter Silverberg, Section Vice Chair
psilverberg3@comcast.net.

1. You are a volunteer and are willing to let us know
2. You know of a program that needs volunteers and never contacted the Section. We can post the requests on the web site.

Right now, section support falls into two categories.

First, Mark Soffa, Ken Paist, and Ben Wolfgram have been running a program at Enon Baptist Church, introducing kids to Arduino microcomputers.

Second, we have sent a few judges and financial donations to Future City, Delaware Valley Science Fair, and MATE (Marine Advanced Technology Education).

Finally, calls for mentors are coming soon and could use you. Being a judge takes less time, but is also important. Just keep an eye on the web site.



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IEEEEE Awards Night Temple University TV

TUTV is the university's digital cable station that produces original programming from across Temple's schools, colleges and campuses.

The station also creates content in partnership with cultural organizations, community groups and professional media companies.





PHILADELPHIA SECTION NOTES

IEEE PHILADELPHIA SECTION OFFICERS

Chair: Philip Gonski, P.E.: philip.m.gonski@ieee.org

Vice Chair: Peter M. Silverberg: psilverberg3@comcast.net

Treasurer: Robert Johnston: rlj1620@gmail.com

Secretary: Chris Vaile: cvaile@burns-group.com

Past Chair: Mark Soffa; msoffa@kns.com

ADMINISTRATIVE COMMITTEE (ADCOM)

ADCOM meets the second Tuesday of the month (Tuesday, May 10) at the Sheraton University City. Members are welcome to attend. Reserve a seat by calling the office by the Friday before the meeting.

ALMANACK STAFF

Publisher: Phil Gonski, P.E.: philip.m.gonski@ieee.org

Editor: Michael Mayor, P.E.: michael.mayor.pe@ieee.org

Assistant Editor: Peter Silverberg: psilverberg3@comcast.net

News and notices contact: michael.mayor.pe@ieee.org

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Almanack Advertisement: The Philadelphia Section of the IEEE encourages placement of technical, professional, promotional and commercial advertisements.

The Almanack is published ten times a year and is read by more than 4,000 members in over 150 key industries. For more information, contact michael.mayor.pe@ieee.org.

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Full Page:	\$100
3/4 Page:	\$75
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1/4 Page:	\$25

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IEEE Philadelphia Section Main Office:

11 Bala Avenue, Bala Cynwyd PA 19004, 484.270.5136
sec.philadelphia@ieee.org

Sixth Annual IEEE Signal Processing in Medicine and Biology Symposium (SPMB16)

Saturday, December 3, 2016
Temple University, Philadelphia, Pennsylvania

IEEE SPMB16 is a regional symposium intended to provide a highly interactive forum where bioengineering and signal processing researchers can collaborate on emerging trends in signal processing. We expect approximately 125 researchers to attend. We specifically encourage graduate students to attend and present their thesis or dissertation research. Awards for best student paper and presentation will be given. This is an excellent opportunity to network with leading professionals in your field and to form new collaborations.

Signal processing plays a vital role in applications ranging from medical electronics to data mining of electronic medical records. The enormous amounts of data that can be acquired from devices are enabling a new generation of technology based on big data. This symposium is intended to bring together a wide range of professionals interested in applications of signal processing medicine and biology. The symposium is sponsored by IEEE-USA, IEEE Region 2, IEEE Region 2 Philadelphia Section, Temple University, the Neural Engineering Data Consortium and NYU Polytechnic School of Engineering.

The symposium will consist of two plenary talks, two oral sessions and two poster sessions. Exhibits and demonstrations are encouraged as well. Interested parties should contact the conference organizers at: help@ieeespmb.org for further details.

Symposium Topics:

Traditional signal processing topics include:

- Signal analysis (e.g., EEG, ECG, EMG)
- Medical imaging (e.g., MRI, fMRI)
- Machine learning, data mining and classification
- Big data resources and applications
- Signal processing methods in bioinformatics
- Linear, nonlinear, and adaptive filtering and prediction
- Time-frequency and non-stationary signal analysis

Applications of particular interest this year include:

- Wearable healthcare devices
- Data mining and analytics in healthcare
- Security and reliability in wireless medical technologies
- Biomedical Nano sensors and wireless technologies
- Biomedical instrumentation and electrical stimulation
- Emerging medical devices, technologies and applications

If you have questions about the relevance of a planned submission, feel free to contact the technical committee at help@ieeespmb.org for guidance.

Paper/Abstract Submission:

Presenters may choose to submit to one of two peer-reviewed tracks:

- (1) Paper: An original four to six-page paper for oral presentation.
- (2) Poster: A one-page abstract that will be presented as a poster.

All papers and abstracts are indexed in IEEE Xplore (search for "IEEE SPMB").

Papers/abstracts can be submitted via email to: submit@ieeespmb.org. Papers must be prepared using the standard IEEE conference paper template (see [IEEE Templates](#) for more information.)

Important Dates:

Submission	Sept. 1, 2016
Notification	Oct. 1, 2016
Early Registration	Nov. 1, 2016

Organizing Committee:

General Chairs:

Joseph Picone (Temple) Ivan Selesnick (NYU-Poly)

Conference Co-Chair:

Charles Rubenstein (Pratt)

Program Chairs:

Iyad Obeid (Temple)
Nashwa Elaraby (Penn State)
Vira Oleksyuk (Temple)
Xiaomu Song (Widener)

Industrial Liaison:

Mike Mayor (IEEE SPS)

Publications Chair:

Georgios Lazarou (USA)

Local Arrangements:

Shawn Fagan (Temple) Tamika Butler (Temple) Gabriella Suarez (Temple)

Web: <http://www.ieeespmb.org/2016>

Contact: help@ieeespmb.org



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www.highpowersolutions.biz

Bryan.weaver@ieee.org

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Contact: Michael Mayor, P.E.

michael.mayor.pe@ieee.org

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Contact: Michael Mayor, P.E.

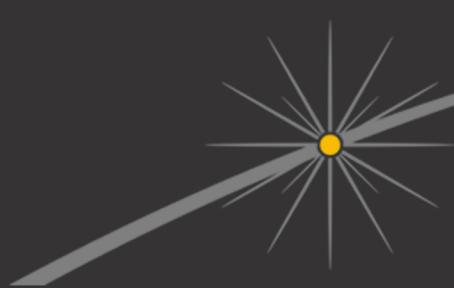
michael.mayor.pe@ieee.org

Your Business Card Here

Contact: Michael Mayor, P.E.

michael.mayor.pe@ieee.org

The IES Philadelphia Section proudly presents



light on the
HORIZON

Illuminate**PHILADELPHIA**

THE HUB AT THE CIRA CENTRE

2929 Arch St, 2nd Floor, Philadelphia, PA 19104

Thursday, October 13, 2016

9:30am - 6:00pm

- **MANUFACTURER TABLE TOPS** •
- **EDUCATIONAL SEMINARS** •
- **CEU/AIA CREDITS** •

The event includes table top viewing throughout the day, with free lunch and happy hour for registered attendees.

Be sure to pick up your entry form at the event for your chance to win one of three prize giveaways (total value of \$1,000)

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www.illuminatephiladelphia.org



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Philadelphia Section
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