PHILADELPHIA SECTION of the IEEE

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Almanack

Vol. 59, No. 2 www.ieeephiladelphia.org **February 2014**

SECTION MEETING

Feb. 18, 2014
Dinner: 6 pm
Speaker: 7 pm
Sheraton University City
Philadelphia
Meal Cost: $25.00 (students $15.00)
Parking cost paid by section

Domenic Vitiello, Ph.D.
Celebrate National Engineers Week with some Philadelphia Engineering History

Inside the Almanack.

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

February 2014

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IEEE NIGHT

Philadelphia Section Meeting

Joint with PES/IAS (Power Engineering Society, Industrial Applications Society
Date: Tuesday, February 18, 2014
Time: Dinner is at 6 pm. Program starts at 7 pm.
Location: Sheraton University City, 36th and Chestnut, Philadelphia
Cost of dinner is $25.00 (students $15.00); meeting only is free (Real cost of dinner is higher, which is mostly subsidized by section)
Reservations are needed, call 484.270.5136 or email the section office.
sec.philadelphia@ieee.org or use vtools in the web site
Indoor parking is at location and paid by section. Bring ticket to be stamped.
Note: In the event of bad weather please call the Sheraton after 1pm the day of the meeting at (215) 387-8000. Ask the front desk if the meeting has been canceled.

Domenic Vitiello, Ph.D.
Celebrate National Engineers Week with some Philadelphia Engineering History

'Engineering Philadelphia' - - The Sellers brothers, Samuel and George, came to North America in 1682 as part of the Quaker migration to William Penn's new province on the shores of the Delaware River. Across more than two centuries, the Sellers family—especially Samuel's descendants Nathan, Escol, Coleman, and William—rose to prominence as manufacturers, engineers, social reformers, and urban and suburban developers, transforming Philadelphia into a center of industry and culture. They led a host of civic institutions including the Franklin Institute, Abolition Society, and University of Pennsylvania. At the same time, their vast network of relatives and associates became a leading force in the rise of American industry in Ohio, Georgia, Tennessee, New York, and elsewhere.

Domenic Vitiello will tell the story of the influential Sellers family, placing their experiences in the broader context of industrialization and urbanization in the United States from the colonial era through World War II. The story of the Sellers family illustrates how family and business networks shaped the social, financial, and technological processes of industrial capitalism. The Sellers family and their network profoundly influenced corporate and federal technology policy, manufacturing practice, infrastructure and building construction, and metropolitan development. Domenic will also link the family's declining fortunes to the deindustrialization of Philadelphia—and the nation—over the course of the twentieth century.

Domenic Vitiello is Assistant Professor of City Planning and Urban Studies at the University of Pennsylvania. His research and teaching examine the history and contemporary practice of community and economic development, with particular focus on industrialization, migration, and urban agriculture and food systems. Domenic has written two books. The first traces the ways in which the Philadelphia Stock Exchange, its members, and the companies they underwrote shaped the rise and decline of Philadelphia as a financial center.

His second book titled "Engineering Philadelphia," which will be presented, is a biography of a family that explores the networks of people, firms, and institutions that made the Philadelphia and region one of the world's foremost centers of engineering and industry.

IEEE Philadelphia Section Aerospace and Electronic Systems Chapter

Tour of the American Helicopter Museum

MEETING DETAILS

Date: Saturday, February 8, 2014
Time: 11:30 AM | Tour: 12:00 P.M. - 2:00 P.M.
Location: 1220 American Blvd. West Chester, PA 19380
Cost: $10. (Registration and payment is required in advance)
Registration: Use vtools to register online. Please register by Wednesday, February 5.

The American Helicopter Museum and Education Center is the nation's premier aviation museum devoted exclusively to helicopters. We collect, restore and display historic aircraft and chronicle the origin and development of rotary wing aircraft.

Each year the Museum hosts thousands of visitors, school groups, families and senior citizens. Tourists of all ages from the U.S and abroad come here to witness the history and the future of the helicopter.

Through our library's continually growing collection of documents, artifacts, films, memoirs and research the Museum serves as an important source of public information about rotary wing aircraft.

Appropriately the Museum is located in suburban Philadelphia where two of today's major helicopter manufacturers have their roots, and where much of the earliest development of helicopters in the U.S took place.

Currently, the Museum displays over 35 civilian and military helicopters, autogiros and convertaplanes. The exhibits span the history of rotary wing aircraft from the earliest helicopters to the latest addition to our nation's defense, the V-22 Osprey

Questions: please email sec.philadelphia@ieee.org

Joint MTT/AP Chapter organizes. Meet Feb. 10

By A.S. Daryoush

Here are the new officers

Chapter Chair - Afshin S. Daryoush (daryoush@ece.drexel.edu)
Vice Chair - Sridhar Kanamaluru (SKanamaluru@TTCDAS.com)
Secretary and Treasurer - Asher Madjar (asher.madjar@gmail.com)
Publicity and Local Arrangements - Gene Bruschke (gene.bruschke@ieee.org)

Meeting planner

Our February meeting will be on Monday evening (5:30-7:30PM) of February 10 and to be held at Drexel University. Full details on another page in Almanack. I also propose organizing the IEEE Philadelphia Section "Benjamin Franklin Symposium on Microwave and Antenna Sub-systems Applied to Wireless, Biomedical, and Aerospace Applications" (MASS2014) on September 20, 2014.

[There was a meeting January 15; a talk by Prof. Stefano Maci on "Self-Complementary Metasurfaces." It did not make it into the Jan. Almanack.]

2014 Delaware Valley Young Engineer of the Year: Philip M. Gonski, PE

A native of Chicago, Illinois, Philip Gonski was drawn to engineering at a very young age, encouraged by both of his engineering grandparents. After graduating from the University of Illinois at Urbana-Champaign with a degree in Electrical Engineering, Phil accepted a position as an Electrical Associate with the Fossil Power division of Sargent & Lundy.

Taking advantage of the highly experienced staff and resources available at the firm, Phil quickly gathered a wealth of experience through working on many diverse power plant projects across the United States. His aptitude at a young age was recognized by the firm and propelled Phil to serve as an electrical engineering lead on the world's first commercial combustion turbine power plant powered entirely by bio fuel.

The multi-year, $60 million dollar project featured a 135 MW bio-diesel gas turbine, complete with a complex wastewater treatment system, and two 2,000 MW black start diesel engines. Leading a team of drafters and designers, Phil helped manage both the project budget, technical aspects of the design, and support during construction. The project was successfully completed in 2009 and serves a wide variety of uses for the island.

In the normal scenario, the power plant provides base-load power to the island, as well as peaking power during summer periods, when demand usage is higher. In addition, the plant implemented an unorthodox approach of providing black-start power to the entire island, drastically reducing outage periods. As Hawaii had relied previously on imported coal, the new plant could respond to a utility blackout, and provide start up power to local coal fired power plants. The successful completion and novel approach garnished much media attention.

Phil's technical expertise and strong management skills resulted in his promotion to Senior Electrical Engineer at Sargent and Lundy, a feat he is amongst one of the youngest to achieve. Aside from his technical duties and accomplishments, Phil took night classes at the University of Illinois at Chicago and earned a Master's Degree in Power Engineering, graduating with a 4.0 GPA.

In his final project at Sargent and Lundy, Phil served as a lead engineer for the electrical design of a $1 billion, 3,200 MW combined cycle power plant in Saudi Arabia. His responsibilities included schedule development, managing the projects $1 million dollar electrical design budget, preparation of single line diagrams, equipment sizing calculations, protective relaying network design, and equipment specifications for five 400 MW power blocks. Due to the complex nature of the project, Phil coordinated weekly conference calls with engineers at the firm, as well as other engineering companies located in Europe, Asia and the Middle East. Phil also traveled to India for a month to supervise the team's joint venture partners and help streamline project completion. By the end of the design phase, the project required over 7,000 electrical drawings, 40 equipment specifications, and employed several thousand construction workers to build the plant. When construction was completed, the power plant stands as one of the largest combined cycle power plants ever built, one of the largest power engineering projects in recent history, and has a power block that spans roughly one-mile.

In 2011, Phil moved to Philadelphia and began working as a project manager for the Keystone Engineering Group, Inc. in Frazer, Pennsylvania. Since joining Keystone, Phil has managed a wide spectrum of high-profile projects. His projects have ranged from upgrading 100-year-old electrical infrastructure in wastewater plants & train stations, as well as numerous industrial projects. Phil has earned a reputation as an expert in renewable distributed generation power projects in the area. Connecting small distributed power plants to the local power grid involves navigating complex utility regulations, protective relaying schemes, as well as an intricate understanding of power system integrity and stability. Phil's knowledge of designing power plants, and utility interconnect regulations, has been key to the success and operation of many local high profile renewable energy projects.

This expertise has been vital in bringing online a $6 million, 2,000 kW of landfill gas-fired generator project at a local landfill, a 1,750 kW generator operated by waste gas generator by plastics production, as well as a recent 250 kW generator powered by gas generated by anaerobic digestion at a waste water plant. Phil has also served as an expert consultant to other companies to assist in successfully paralleling the generators to the power grid.

Outside of his technical involvement, Phil has been a staple in the local engineering community. He is a member of the Philadelphia chapter of the IEEE and served as the Secretary in 2012, as well as managing the Section's assets as Treasurer in 2013. Phil has helped organize multiple local conferences in the area, including hosting and being the speaker at a Distributed Power Generation Seminar at Villanova, as well as a Control System Seminar at Penn State. The proceeds of these events were donated back into the society's charitable endeavors.

Phil's role in the IEEE Philadelphia will expand in 2014, as Phil was voted by the 4,000-person electorate as the next year's Chair in an open election.

His involved role in the technical community was recognized by the IEEE Philadelphia when he was awarded "Young Engineer of the Year" for 2013 for outstanding technical achievement and community involvement by a engineer younger than 35.

Inspiring the next generation of engineers has always a passion of Phil's, which has led to volunteering on local scholarship boards, assisting at local science fairs in the region, and helping to promote STEM (Science, Technology, Engineering, and Math) programs at both the local level through grammar and high schools, as well as the national level. Phil was selected by the IEEE to serve as a delegate to discuss STEM initiatives with local senators and congressman in Washington, DC. On a more local level, Phil helped to provide the electrical engineering content for the Engineer's Club's new Discover Engineering Philadelphia website.

Phil also is on the Board of Directors of the National Society of Professional Engineers-Valley Forge Chapter, and has authored multiple technical articles, including "Diagnosing Motor Bearing Currents," published in EC&M Magazine in August 2012. This paper serves as an industry resource on the rare phenomenon of motor bearing currents in induction motors, powered by unbalanced power sources. Phil also authored a technical paper entitled "Arc Flash 2013 Hazards in the Water Industry," published in Waterworld Magazine, which helps to address the moisture rich environment of water plants, and reducing risk to workers. Philip has also been chosen to be a guest speaker for the IEEE and PSPE Valley Forge as well as a course instructor at the 2013 NSPE Boot Camp East and West

Philip M. Gonski is a licensed professional engineer in Pennsylvania, Illinois, Michigan, Maryland, West Virginia, North Carolina, and Kentucky.

Chair's Message

By Philip Gonski, P.E.

Membership is the lifeblood and driving force of all professional societies. Due to a myriad of socioeconomic factors, most professional societies have seen a dramatic decline in membership since 1960. This has driven many organizations to extinction. Although we have avoided such a fate, some long for the old "glory days" of packed meeting rooms, corporate sponsorships, and weekly talks.

Rather than view this age as nostalgic, our Section, and on a much greater scale, the IEEE as a whole, must learn to adapt to the dynamics of the modern age while at the same time, carry on the traditions that have made our organization so successful. Specifically, we need to continue the tradition of reinvesting in our members so that we remain esteemed in the eyes of today's and tomorrow's engineers.

Providing members with real value for their time and monetary contributions is key and this is no easy task. These days, we are all inundated with opportunities through new mediums like Twitter®, LinkedIn®, and Google®, to name a few. We all strive to efficiently sift through this virtual landscape, and use it grow our professional networks and share important information.

However, these online tools, in and of themselves, are not enough. There is no substitute for building in-person connections with peers and the industry leaders who came before you. There are real life experiences and insight to be gained from interactions with colleagues that you cannot find in any textbook or on any webpage. This is one of the factors that drive me and many others to attend our monthly Section Meetings and I view this as the greatest benefit to all our members.

Furthermore, many individuals at our Section Meetings are looking for new and experienced talent, and our Employment Network has a track record of filling long-term positions. Our active younger members can certainly attest to the benefit that attending meetings has had on their own career development. There is no shortage of competition for the best jobs in today's market, and the leading firms wisely recognize the benefits of IEEE membership.

Earlier this month, we organized the largest volunteer drive to-date. Feedback was overwhelmingly positive, and the Section gained many volunteers to assist with planning events and activities. Please join us at the upcoming tours of the DuPont Gunpowder Mills and the American Helicopter Museum, both of which were great suggestions from the recent member survey. We were also hard at work reviving four of our Chapters as well as finalizing an agreement with the Electrical Association of Philadelphia (EAP) to bring discounted professional development courses to our members. For those who did not see the latest newsflash: all of our members now have access to 12 discounted classes/year to be used toward renewing their P.E. licenses.

Our goal is to make this a banner year for Philadelphia and serve as a model to the IEEE on how to adjust to changing times. We are well on our way to achieving great things this year.

Section notes

Adcom meets second Tuesday of the month (Feb. 11) at the Sheraton University City. Members are welcome to attend. Reserve a seat by calling the office by the Friday before.

For the record, the program for January 21 was changed and then snowed out. Jack Nachamkin, Ph.D. was substituting for the fire officials of Delanco NJ. His topic was to be Can Cold Fusion Be Real? We hope to have the fire officials, Mr. Mayor, and Dr. Nachamkin at a later date.

New Educational Benefit

As part of our ongoing mission to better serve our members, the IEEE Philadelphia Section is excited to announce a course alliance agreement with the Electrical Association of Philadelphia (EAP) for 2014.

The EAP is a professional organization consisting primarily of equipment suppliers, electricians, engineers, and power utilities. Throughout the years, they have successfully organized between 10-20 courses per year. Several courses are accredited as NY and NJ CEUs, and are valid for PA P.E. license renewals. Course topics are of particular interest to consulting engineers, with topics including: protective relaying, high voltage electrical equipment, NEC updates, home wiring, commercial building electrical design, as well as numerous classes covering the design of standby generators and fire pump installations. Instructors are well experienced electrical engineers and inspectors, with a particular focus on providing training and education based on industry need.

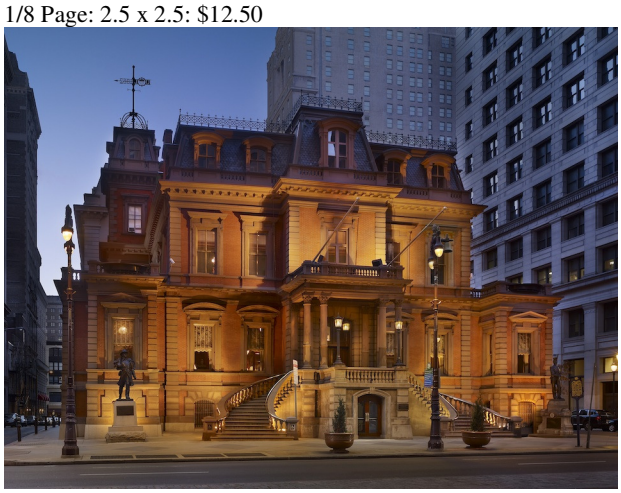
Now, active IEEE Philadelphia Section members can receive a discounted rate on all of the courses. Courses will be advertised on the IEEE Philadelphia Section's website under *Area Meetings & Events*, directing members on how to register. Discounts will only apply to members who have renewed for the 2014 year, and will be verified prior to being allowed into the course.

Almanack Staff

Publisher: Phil Gonski, P.E.
Editor: Peter Silverberg
Asst. Editor: Janet English-Cartright, Ph.D. jenglish@fi.edu
News and notices contact psilverberg3@comcast.net or 856.461.6615 or fax 509.461.6617
Deadline for the March issue is February 11, 2013
New & improved web site: www.ieeephiladelphia.org

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

1/2 Page: 5 x 5: $50
1/4 Page: 2.5 x 5: $25
1/8 Page: 2.5 x 2.5: $12.50



Save the date.
The Awards Banquet will be held April 12 in the Lincoln Room at the Union League. Please mark your calendar and be prepared to come for an entertaining and educational evening.

Ernest's Page **Spread of Technology Systems**

By Ernest Cohen, Ph.D.

Electrical engineering is the branch of engineering that spawned systems as a sub discipline, for two reasons. First, a significant portion of electrical engineering is concerned with control problems, often for very complex systems, and second, computers are a major area in which electrical engineers were pioneers.

This put electrical engineers in a favored position to try to deal with complex, systems, outside of engineering, such as weather or social systems. My favorites are those with "break points," values of the parameters at which the system behavior changes abruptly. After leaving GE, I was employed as a "Management Scientist" by Atlantic-Richfield. One of the areas I tried to model was price wars at gasoline stations. The system behaves quite differently when a price war is going on and outlets are drastically changing prices, sometimes several times a day then under normal conditions. I also modeled the market for unleaded fuels, which was a direct application of my doctoral research.

Wanting to apply systems engineering outside to civilian problems, I obtained an internal contract to study electric cars from the Transportation Division of General Electric. I expected to do a technical engineering analysis. Then, I found that it had already been done by a team from the General Engineering Laboratory in Schenectady. I may be brilliant, but as an individual, I was no match for a team of top engineers. Realizing the limitations of electric vehicles, I thought the problem would be to find niche applications, and introduce the new technology there. I suggested that vehicles, which never go far and never go fast, are the ideal applications, particularly if they sometimes operate indoors where air pollution becomes a consideration. But GE Transportation Division management wasn't interested in niche markets, and did not want to spend the R&D money required to get better batteries. Which is why, when several automobile companies are now marketing electric cars, General Electric is not in that game.

So, I ended up doing my doctoral research under the human factors professor at the Moore School of Electrical Engineering at the University of Pennsylvania. The key point was the public acceptance of new technology, which involved social systems. The best model for the spread of ideas, or new technology, is that the rate of spread is proportional to the number

of users, and also to the number who have not yet adopted the new technology. This model also applies to the spread of contagious diseases. The resulting curve has a bell shape, very similar to the normal distribution. Social scientists are accustomed to applying the normal distribution to almost everything they study. One of the most creative things in my doctoral dissertation, “Optimum Acceptance Rates for Public Service Systems” (December 1969) is Appendix A, in which I estimate the sample size necessary to distinguish the two curves. The number is rather large, which partly explains why social scientists working on the spread of ideas and technology usually continue to use the normal distribution in their work. At that time, this was quite an esoteric subject. Now, such concepts as “early adopters” have come into common use.

The roots of electric vehicle technology go way back. Thomas Edison developed the alkaline battery for vehicle propulsion, and I remember seeing battery-powered trucks in my childhood. But until the issue of anthropogenic climate change was raised, the standard Detroit automobile would out perform anything electric, with available battery technology. Today we know there was a potential market for electric cars, but GE missed the opportunity.

IEEE Philadelphia Employment Network Group

Date: February 27, 2014
Time: 7:00 PM - 9:00 PM
Topic and Speaker: "General Meeting/Job Search Roundtable", moderated by George Butts
Meeting Agenda: Job search topics and open discussion roundtable.
Location: Room 709, 7th Floor, Bossone Enterprise Center 3128 Market Street, Philadelphia, PA 19104 (between 31st and 32nd Streets) on Drexel University's campus.
Cost: No Charge, refreshments will be available
Registration: Please register by 5 pm February 27, 2014, by using tools at https://meetings.vtools.ieee.org/meeting_view/list_meeting/23167
Parking: Nearby lots: (1) On the left side of Market Street just before 31st Street; (2) on the right side of Market Street, just past 31st Street; (3) from Market make Left on 36th to University City Sheraton garage. Public Transportation: SEPTA (Rail: 30th-Street Station; Subway and Trolley: The Market-Frankford Line (the Blue Line) stops at 30th and 34th Streets and all trolley trains (the Green Lines) stop at 30th and 33rd Streets.)

*** join our group on LinkedIn for the latest updates and articles related to IEEE Employment around the Philadelphia Region - Search LinkedIn Groups for “IEEE Philadelphia Employment Network” ***

Student Award

The Section congratulates Christen Corrado of Rowan University on winning a Richard E. Merwin Award and being appointed an IEEE Computer Society Student Ambassador for the next 12 months. She has been judged one of the most outstanding student members of the IEEE Computer Society. The ambassadorship is also an opportunity for her to play a leadership role within the society.

Section Directory for 2014

(Please report corrections to the office and P.Silverberg)

Executive Officers

Phil Gonski, Chair
philip.m.gonski@ieee.org
610.407.4100 x44
Adam Fontecchio, Ph.D, Vice Chair
Call the IEEE Philadelphia Office
Leonardo F. Urbano, Secretary
Call the IEEE Philadelphia Office
Richard Primerano, Ph.D., Treasurer
Call the IEEE Philadelphia Office
Mark Soffa, Past Chair
215.784.6463
msoffa@kns.com

Committee Members
(Chairs are on Adcom)

Awards Night Planning
Adam Fontecchio, Ph.D., Chair
Fulvio E. Oliveto
215,467,8018
FEO3211@aol.com
Awardee Selection Committee
Merrill Buckley, Chair
610.544.1876
m.buckley@ieee.org
Tom Fagan
tfagan@ieee.org
484.678.1078
Victor Shutz
v.schutz@ieee.org
610.649.9331
Communications/Publicity
Peter Silverberg, Chair
psilverberg3@comcast.net
856.461.6615
Dr. Janet English-Cartwright
jenglish@fi.edu
215.448.1349

East Area Region Chair
Robert Lawson
215.327.6217
rclawson@ieee.org
Education
John Iannuzzi, Chair
jfiannuzzi@coretechgroup.com
215.830.9826 x 21
Mark Soffa
msoffa@kns.com
Finance
Robert (Bob) Johnston, Chair
610.354.4862
r.johnston@ieee.org
Industry Relations
Bob Swayne, Chair
rswayne@burns-group.com
215.979.7700
Danilo Bassi
danilo.bassi@email.com
Mark Soffa
215.784.6463
msoffa@kns.com
Member Activities
Robert Lawson, Chair
215.327.6217
rclawson@ieee.org
Harold Ammond
856.534.3726
h_ammond@yahoo.com
Nominations and Appointments
Margaret Goodman
messgwg@gmail.com
610.455.3897
PACE
Brittney Burchett, Chair
610.248.2177
Burchett.brittney@gmail.com
Professional Activities
Emilio Salgueiro
emilio.salgueiro@unisys.com
610.648.3444
Tasos Malapetsas
609.239.0480
t.malapetsas@ieee.org
Section Night
Fulvio Oliveto
FEO3211@aol.com
215.467.8018

Student Activities
Richard Barnett Adler, Chair
b.adler@ieee.org
Student Representative
Fallon Kider
fkider269@gmail.com
Technical Activities and Conferences
Marvin Weilerstein, Chair
215.887.5041
m.weilerstein@verizon.net
Bob Swayne
rswayne@burns-group.com
215.979.7700
Young Professionals (GOLD)
David Mino, Chair
mino1129@gmail.com
215.801.9965
Women In Engineering (WIE)
Violeta Jankov, Chair
Violeta.jankov.us@ieee.org
484.418.1070

Chapter Organization

Aerospace and Electronic Systems (AES)
Chair: Fauzia Ahmad
Fauzia.ahmad@villanova.edu
Antennas and Propagation/Microwave Theory and Techniques (AP/MTT)
Chair: Afshin S. Daryoush, Ph.D.
215.895.2362
daryoush@coe.drexel.edu
Vice Chair: Sridhar Kanamaluru
SKanamaluru@TTCDAS.com
Secretary and Treasurer: Asher Madjar
Asher.madjar@gmail.com
Publicity: Gene Bruschke
Gene.bruschke@ieee.org
610.913.6546
Circuits and Systems/Control Systems/Systems, Man and Cybernetics (CAS/CS/SMC)
Chair: Zia Ahmad
215.784.6838
zahmad@kns.com
Communications/Information Theory (COM/IT)
Chair: Moshe Kam
215.895.6920
Email: kam@minerva.ece.drexel.edu
Vice Chair: Pramod Abichandani
Computers (C)
Chair: Dr. Jie Wu
Phone: 215.204.8450
jiewu13@gmail.com
Electromagnetic Compatibility (EMC)
Chair: Graham Kilshaw
610.382.5885
gkilshaw@item-media.net
Vice Chair: Finnbarr O'Connor
610.825-1960 x 221
foconnor@alionscience.com
Secretary: Matt Marotto
matthew.marotto@gmail.com
Electron Devices/Components, Packaging and Manufacturing Technology (ED/CPMT)
Chair: Vacant
Engineering in Medicine and Biology (EMB)
Chair: Donald L. McEachron
215.895.1382
mceachdl@drexel.edu
Engineering Management/Social Implications of Technology (EM/SIT)
Chair: Vacant
Magnetics (MAG)
Chair: Vacant
Professional Communication (PCS)
Chair: Vacant
Power Engineering/Industry Applications (PE/IA)
Chair: Mike Reynolds
mreynolds@burns-group.com
Vice Chair: Affan Abdullah
affan.a.abdullah@sargentlundy.com
Treasurer: Tim McBride
TimothyMcBride@eaton.com
Secretary/Treasurer: Jonathan Schimpf
jschimpf@burns-group.com
Professional and Educational Activities: Rich Delp
rdelp@schillerhersh.com

Membership and Past Chair: Richard Barnett Adler
b.adler@ieee.org
Programs and Past Chair: Bob Swayne
rswayne@burns-group.com
Reliability (R)
Chair: Fulvio Oliveto
FEO3211@aol.com
Signal Processing/Broadcast Technology/Consumer Electronics (SP/BT/CE)
Co-Chair: Gail Rosen
215.895.0400
gailr@ece.drexel.edu
Co-Chair: Mike Mayor
484.524.3264
michael.mayor.pe@ieee.org
Vehicular Technology (VT)
Chair: Brandon S. Swartley, P.E.
856.986.1221
Brandon.swartley@ieee.org
Vice Chair: Harvey Glickenstein, P.E.
973.565.4820 (office)
glickenstein@pbworld.com
Secretary/Treasurer: Robert Fisher, P.E.
215.209.1254
rbFisher@ieee.org

Affinity Groups

Consultants Network (CONET)
Web Link : http://www.phila-ieee-consultants.org/
Chair: Robert Peruzzi
610.462.3939
Peruzzi@ieee.org
Vice Chair: Baw Ch'ng
868.229.6268
info@bawman.com
Treasurer: Peter Z. Ingerman
609.871.7474
pzi@ingerman.org
Recording Secretary: Jonathan Allen
609.737.8896
Jonathan.A@IEEE.org
Corresponding Secretary:
Gene Bruschke
610.913. 6546
gene.bruschke@ieee.org
Webmaster: Ed Segall
610.668.0292
EJS@Edge-Technical.com
Life Member Group
Chair: Merrill Buckley
610.544.1876
m.buckley@ieee.org
Young Professionals Group (formerly GOLD (Graduates of the Last Decade))
Chair: David Mino
mino1129@gmail.com
Women In Engineering (WIE)
Chair: Vicky Jankov
Violeta.jankov.us@ieee.org
Employment Network
Chair: George Szekely
215.346.6528
George.szekely@ieee.org

Student Branches

Drexel University SB
Chair, Nikhil Gulati
Nikhil.gulati@drexel.edu
Drexel University Graduate SB
Chair, Nikhil Gulati
Nikhil.gulati@drexel.edu
Golden Valley Institute of Technology SB
Chair, Akshaye Dhawan
akshaye.dhawan@gmail.com
Rowan University
Chair, Christen Corrado
cmcorrado93@optonline.net
Temple University
Chair, William Moser
william.r.moser@gmail.com
Widener University SB
Chair, Kristofer Gill
krgill@gmail.widener.edu

Philadelphia Section Looking for IEEE Awards Candidates

The Philadelphia Section IEEE Awards Committee needs your help in the process of nominating members (yourself included) to the Senior Member and Fellow membership grades, and to receive IEEE awards and medals. The committee is seeking the names and biographies of individuals whose meritorious achievements in one of the areas of IEEE interest — Electrical Engineering, Computer Science and allied branches of Engineering, Arts and Sciences — deserve wide recognition. Many significant contributions to the profession that originated in Delaware Valley companies and universities are yet to be promoted and properly recognized by the IEEE.

The **Senior Member** grade is the highest professional IEEE grade for which application can be made. This grade requires the candidate to have been active professional practice for at least ten years. Evidence is requested for significant performance of the candidate over at least five of these years, as an engineer, scientist, educator, technical executive, or technical originator. The awards committee will gladly furnish application forms to interested members, and help in preparing the application.

The **Fellow** grade recognizes unusual distinction in the profession, and is conferred by the IEEE Board of Directors. IEEE Fellows are individuals of outstanding and extraordinary qualification and experience in IEEE fields of interest. Nominations to the Fellow grade are made by peers of the nominee, and are usually supported by other Fellows, by local IEEE Chapters and by an IEEE Society.

The IEEE also bestows recognition on its most outstanding members in the form of a Medal of Honor, IEEE Medals, Technical Field Awards, Service Awards, and Paper- Prize Awards.

The IEEE Philadelphia Section will help nominators and nominees in preparing forms, locating appropriate nominators, endorsing candidates for awards and medals, and sometimes serving as the nomination body. We strongly encourage members of our Section to contact the committee for information, nomination kits, and general assistance in the process.

<u>The various Philadelphia Section Awards available for nomination are:</u>

Philadelphia Section Engineer of the Year Award

The Philadelphia Section Executive Committee seeks nominations for the IEEE Delaware Valley Electrical Engineer of the Year Award. The Electrical Engineer of the Year will be recognized at the Section's Annual Awards Banquet. Nominees should be engineers who are members of the section, and who have demonstrated excellence in technical, scientific, academic, or managerial endeavors. The award emphasizes creative, important, and widely recognized work.

******Nominators are asked to submit a short letter of nomination (1-2 pages) and a resume of the candidate.*

Young Electrical Engineer of the Year Award

The Philadelphia Section Executive Committee seeks nominations for the IEEE Delaware Valley Young Electrical Engineer of the Year Award. This person will be recognized at the Section's Annual Awards Banquet. The nominee must be under 35 years of age before

January 1, 2013 and should be a graduate of an accredited curriculum with a degree in Engineering or a related field. The award emphasizes creative, important, and widely recognized work. An additional part of the judging will be the candidate's contribution to professional, civic, and charitable affairs.
**Nominators are asked to submit a short letter of nomination (1-2 pages) as well as a resume of the candidate.*

Benjamin Franklin Key Award
The IEEE Philadelphia Section invites nominations for its annual Benjamin Franklin Key Award to recognize an electrical engineer in the Philadelphia Section for outstanding technical innovation and technological contributions that have had significant practical applications. The award emphasizes technical innovation, such as a system (design and application), a significant improvement to a system, or patents of clear practical values. Emphasis will be put on tangible technical and technological achievements that demonstrate intellectual, industrial, economical or human benefits.
**Nominations should include:*

1. *A description of the nominee's technical invention, system, project, or patent*
2. *A proposed citation (30 words or less)*
3. *The nominee's curriculum vitae*
4. *Additional evidence demonstrating the invention, system, project, or patent*

Philadelphia Section Corporate Technology Innovation Award
The IEEE Philadelphia Section invites nominations for its annual Corporate Technology Innovation Award. This award recognizes a company or corporation for its outstanding contribution to electrotechnology. The award emphasis developments, projects, products, and other group achievements, that have been very innovative and successful.

**Nominations should include:*

1. *A description of the nominee's technical accomplishment*
2. *A proposed citation (30 words or less)*
3. *Any additional appropriate information*

Last call to Submit ALL Nominations by February 6, 2014. You may email your nomination to sec.philadelphia@ieee.org. Or mail to:
Merrill W. Buckley, Jr., Awards Committee Chair
IEEE Section Office, 11 Bala Avenue, Bala Cywnwyd, PA 19004.
Think carefully about your fellow workers and about your own contributions. Don't be shy! We really need your help. Call with the name of a potential awardee; even your own. For more information, please call the Section office at 484.270.5136, or use email at **sec.philadelphia@ieee.org**, or contact any member of the committee:

Merrill W. Buckley, Jr.	610.544.1876	Thomas Fagan	484.678.1078
Donald C. Dunn	856.227.2458	Dr. Victor Schutz	

Call for Speakers

TCF'14 and ITPC - March 14 & 15, 2014
At The College of New Jersey

2014 Trenton Computer Festival (TCF'14)
and TCF IT Professional Conference (ITPC)

ISEC'14 - March 8, 2014
At the Friend Center, Princeton University, NJ

IEEE Integrated STEM Education Conference (ISEC'14)

The speaker form for TCF'14 is at:

<https://tcnj.qualtrics.com//SE/?SID=SV_2376yIEtVsZoquF>

or you can email Allen Katz directly at the address below.

Background: TCF-2014 and its associated ITPC will be held on March 14th/15th, 2014. The TCF part will again be one day on Saturday (15th). The IT Professional Conference will be on Friday (14th) and continue on Saturday as part of TCF. (The Integrated STEM Education Conference (ISEC) has moved to Princeton and will be on Saturday a week earlier (8th), but TCF education oriented speakers are wanted.)

This year's theme will be "Multimedia in the Post-PC World." We are seeking speakers specifically to address multimedia related topics in all forms. This year's keynote will address the "Internet of Things" (IoT). Thus, IoT related talks are of particular interest. We also are working on a special program on how to start your own tech business and are interested in related talks.

As in the past, talks (50 minutes) and tutorials/workshop (100 minutes) on all forms of computer/digital electronics, information, communications technology, robotics, home/environmental control, gaming, digital home entertainment, digital video/photography, wireless technology, networking, amateur radio related topics, education, etc. are desired.

If you are interested in more information on:

The IT Professional Conference, contact David Soll at <dsoll@Omicron.com> or <http://princetonacm.acm.org/tcfpro/>.

The Integrated STEM Education Conference see <http://ewh.ieee.org/conf/stem/>.

Speaking at TCF or TCF in general see <http://tcf-nj.org> or contact Allen Katz, TCF Program Chairperson, <alkatz@tcnj.edu>, telephone: 609-771-2666, US Mail: Dr. Allen Katz, Electrical/Computer Engineering Department, The College of New Jersey, PO Box 7718, Ewing, NJ 08628-0718.

TCF™-2014

The College of New Jersey Hosts
The 39th Anniversary of
THE ORIGINAL PERSONAL COMPUTER SHOW

39th Annual

Trenton Computer Festival™

KEYNOTE SPEAKER:
Joseph Salvo,
Manager of the Complex Systems Engineering Laboratory, GE Global Research
on
"The Internet of Things"

NASA

Focus on Multimedia in a Post-PC World

Admission: $10.00 (advance)
$12.00 at Gate
Free Parking
www.tcf-nj.org

@ The College of New Jersey, Ewing, NJ
Saturday, March 15, 2014
9:00 am — 5:00 pm
Registration/Flea Market open at 9 am, Talks start at 10:15 am.

- A Full Track on Internet-of-Things
- Google Glass
  talk by author Barry Burd

- Cloud Computing
- Android/iPhone Apps

INDOOR FLEA MARKET & VENDOR FAIR

50+ Talks, Workshops, Tutorials, Demos and Special Events!

Object-Oriented Programming University: Introductory Short Course by Mike Redlich

TALKS ON WINDOWS, MAC and LINUX

2014 IEEE Region 1 Student Conference

IEEE Micromouse Competition

MULTIMEDIA, 3D PRINTERS, PHOTOGRAPHY, HOME CONTROL, HISTORIC COMPUTERS, SECURITY and WIFI

Ham Cram Session & Exam: Get an Amateur Radio License in one day at TCF!

Arduino Developer/User Tutorial/ Workshop

Special TCF hotel room rate info is available on the TCF website.

TCF IT PROFESSIONAL CONFERENCE

Friday March 14, 2014, 8:30 am — 5:00pm**
Continuing as part of TCF's Saturday Talks.
For Conference Info and Fees See
http://princetonacm.acm.org/tcfpro/

***The IT Pro (Friday) and ISEC Conferences require separate registrations.

DOOR PRIZES

Integrated STEM Education Conference (ISEC)**
Saturday, March 8 – 9:00 am — 5:00 pm
at Friend Center, Princeton University, NJ
Designing Pathways to STEM Success
Info: http://ewh.ieee.org/conf/stem/

For additional TCF'14 info, directions and advance tickets:
www.tcf-nj.org

The 2014 Trenton Computer Festival™ is sponsored by The College of New Jersey and its School of Engineering.

IEEE PHILADELPHIA CHAPTER OF AP/MTT-S
IN COLLABORATION WITH
THE DREXEL IEEE GRADUATE STUDENT FORUM SEMINAR

IMPLANTABLE WIRELESS INTRACRANIAL PRESSURE DEVICES FOR THE ASSESSMENT OF TRAUMATIC BRAIN INJURY

DR. MOHAMMAD-REZA TOFIGHI

PENN STATE UNIVERSITY - CAPITAL COLLEGE
MIDDLETOWN, PA

6:00- 7:00 PM, MONDAY, FEBRUARY 10, 2014
BOSSONE 302, DREXEL UNIVERSITY
(LIGHT REFRESHMENTS TO BE PROVIDED)

Abstract: Evaluation of intracranial pressure (ICP) is of increasing interest in the management of patients who have certain neurological disorders such as hydrocephalus or are suffering from traumatic brain injury (TBI) or blast injury. ICP measurements before and after the injury in a completely closed-head environment have a significant research value. In this talk, fully implantable wireless ICP devices in head, operating at 2.4 GHz microwave frequency, are described. ICP reading techniques, methods for device placements under the scalp, and challenges associated with device calibration and sealing will be discussed. The dynamic ICP measurement performances are evaluated in a specific TBI model of closed-head rotational injury in pig. Particular emphasis will be placed on RF performances such as tissue loss, signal strength, and implanted antennas' characteristics namely resonance frequency, radiation efficiency, and gain. These characteristics are significantly impacted by the presence of tissue loading and absorption. Methods for characterizations of such antennas and tissue loss will be presented as well.

Biography: Mohammad-Reza Tofighi received his Ph.D. degree in electrical engineering from Drexel University in 2001. He is now an Associate Professor of electrical engineering at Pennsylvania State University, Capital College. His main research interests are in RF and microwave systems applied to medical and biological applications. In particular, he conducts research on wireless communication based medical implants, antennas for biomedical applications, microwave radiometry applied to medical applications, and complex permittivity measurement of biological tissues using short time and broadband frequency domain methods. From 2009 to 2013, Dr. Tofighi has been the chair of the MTT-10 of the IEEE MTT society, a standing technical committee on biological effects and medical applications of RF and microwave. He has also served at various capacities in the IEEE MTT sponsored conferences, including International Microwave Symposium (IMS), Radio and Wireless Symposium (RWS), BioWireleSS Conference, and International Wireless Symposium (IWS), in mainly technical capacities of organizing sessions and workshops related to medical and biological applications of RF/microwave.