I would like to congratulate all members of the Schenectady Section of IEEE for continuing to support our section through their membership of the IEEE and its various societies.

Let me also take this opportunity to introduce our 2007 section officers who work tirelessly to keep the section activities going, despite their busy schedules. Please join me in recognizing Peter Sutherland as the section secretary and Vice Chair, Kristin Short who returns to the executive committee this year as treasurer and Vice Chair, Zongqi Sun as Pace chair and Vice Chair. Other section officers are:

- Jose Daconti, Power Engineering Society Chair and Liaison to Prof. Eng. Society
- Antonio Califa, Power Engineering Society Vice Chair – Programs
- Saber Azizi, Power Engineering Society Vice Chair – Secretary
- Chandra Reis, Power Engineering Society Vice Chair Membership, Section Historian and Newsletter Editor/Coordinator
- Howard Halstead, Chair Computer Society and Section Web Master
- Ed Owen, Chair Industry Applications Society
- Dr. Neil Eklund, Chair Computational Intelligence Society (CIS)
- Kevin Matocha, Chair Electron Device Society (EDS)
- Judy Kilday, Chair Engineering in Medicine and Biology Society (EMBS)
- Sameh Salem, Past Section Chair
- Lou Tomaino, Chair Section Membership
- Ralph DeSorbo, Awards Chair
- Rebecca Nold, Nominating Committee Chair
- Shane Cotter, Student Activities Chair
- Cherrice Traver, Chair, Steinmetz Committee Chair

I would also like to commend Kutty Nair and Judy Kilday for helping to add two new chapters to our section last year, the Life Member Chapter and the Engineering in Medicine and Biology Society (EMBS) chapter.

We are looking for a volunteer for the position of Life member chapter chair. The Chapter Chair coordinates 2 - 3 events per year of interest to life members. Events could be anything from technical seminars to historical lectures to social events. Attend executive committee meetings as much as possible – Executive committee meetings are at lunch on a weekday, once a month and include lunch. If you are interested in volunteering for this position or any other position, please contact Rebecca Nold – r.nold@ieee.org. Remember the section is always looking for volunteers.

Finally I would like to let all members know that we welcome your suggestions for speakers or topics of discussion at our monthly membership meetings. Also remember to check the section website for the latest information on upcoming or past events.

Email us with your thoughts!
Shadrack Orero, Section Chair
shadrack.orero@ieee.org

How A Member Upgrades Membership
by Ralph DeSorbo, P.E.

Identification of your IEEE membership level, be it Member level, Senior level, or Fellow level, actually identifies your level of talent and achievements. It is an indication of your level of accomplishment to other IEEE members and to professionals outside of IEEE whether you are just beginning or ending your engineering career. To obtain the recognition you deserve you should seriously consider elevating your membership grade. This action is bound to increase key volunteering opportunities within IEEE and may actually aid you in achieving other objectives in the employment world and in other worlds.

Senior Member Grade

The grade of Senior Member is the highest for which application may be made and shall require experience reflecting professional maturity. For admission or transfer to the grade of Senior Member, a candidate shall be an engineer, scientist, educator, technical executive, or originator in IEEE-designated fields for a total of 10 years.

The member shall have shown significant performance over a period of at least five of those years, including one or more of the following:
- Substantial engineering responsibility or achievement
- Publication of engineering papers, books, or inventions
- Technical direction or management of important engineering work with evidence of accomplishment recognized contributions to the welfare of the engineering profession
- Development or furtherance of important engineering courses in a program on the "reference list of educational programs" (REP list)

Procedure to upgrade to senior level

All of the procedures, details and forms you needed for the upgrade will be found on the following web site:

* Note that only Senior Members can be considered for elevation to Fellow.
Executive Committee
Shadrack Orero, Chair
W: 395-5068
shadrack.orero@ieee.org
Kristin Short, Vice Chair - Treasurer
W: 395-5117 Fax W: 346-2777
k.short@ieee.org
Peter Sutherland, Vice Chair - Secretary
W: 385-2673
peter.sutherland@ieee.org
Zongqi Sun (Sonnie), Vice Chair - Membership
W: 387-6460
zqsun@ieee.org

Appointed Positions
Sameh Salem, Past Section Chair
W: 385-0931
sameh.salem@ps.ge.com
Rebecca Nold, Nominating Committee Chair
W: 385-3883 Fax W: 385-7752
rebecca.nold@ps.ge.com
Lou Tomaino, Membership Chair, Meeting Coordinator
l.tomaino@ieee.org
Ralph DeSorbo, P.E., Awards Chair
Phone & Voice Mail: 518-355-7963
Fax: (320)205-8207
rdesorbo@copper.net
Kristin Short, Past Section Chair
W: 395-5117 Fax W: 346-2777
k.short@ieee.org
Shane Cotter, Student Activities Chair
W: 518-388-8330
cotters@union.edu
Zongqi Sun (Sonnie), PACE Chair
W: 387-6460
sunzo@research.ge.com
Chandra Reis, Section Historian
H: 428-1777
creis@ieee.org
Jose Daconti, Section Liaison to Prof. Eng. Society
W: 395-5090
jose.daconti@siemens.com
Howard Halstead, Webmaster
W: 356-7664
halstead@ieee.org

Newsletter Editor
Chandra Reis
W: 514-3217
creis@ieee.org

Steinmetz Committee
Cherrice Traver, Chair
W: 388-6326
traverc@union.edu

Power Engineering Chapter
(PES-31)
Jose Daconti, Chair
W: 395-5090
jose.daconti@siemens.com
Saber Azizi, Vice Chair - Secretary
W: 385-3820
saber.azizi@ps.ge.com
Antonio Gaiafa, Vice Chair - Programs
W: 387-6774
caiafa@research.ge.com
Chandra Reis, Vice Chair - Membership
H: 428-1777
creis@ieee.com

Computer Chapter
Howard Halstead, Chair
W: 356-7664
halstead@ieee.org

Industrial Application Society
Ed Owen, Chair
W: 355-4112
eowen@nycap.rr.com

Computational Intelligence Society
Dr. Neil Eklund, Chair
eklund@research.ge.com

Electron Device Society (EDS)
Kevin Matache, Chair
W: 387-4777 Fax: 387-5997
natieg@research.ge.com

Engineering in Medicine and Biology Society (EMBS)
Judy Kilday, Chair
Cell: 269-7366
kildaj@yahoo.com

Microwave Theory and Techniques Chapter
OPEN - Must be an MTT Society member
RPI Student Chapter
Justin Rohrer, Chair
rohrer@alum.rpi.edu

Union College Student Chapter
Prof. Ekram Hassib, Faculty Advisor
hassibe@union.edu

IEEE Foundation
As the philanthropic arm of the IEEE, the IEEE Foundation raises and distributes charitable funds to advance technology and education for the benefit of society.
Our mission is to support activities that further the scientific and educational purposes of the IEEE.
To learn more, visit us on the web at www.ieeefoundation.org.
The IEEE has a large concentration of GE employees and retirees in the Schenectady Section. We would very much like to make them aware of GE’s willingness to match their gifts.

Call for Contributions

The Current Source is always open for contributions for future newsletters. There is certainly much more going on in this area then gets profiled in the newsletter. Do you have an article about a historical moment, a future event, or a notable discovery that might be of interest to the local IEEE community? How about a picture of some momentous occasion? Please contribute! Staff editors can even take your bulleted list and turn it into printable article if writing does not appeal to you. We do however have to reserve the right to refuse any material of a commercial nature.
The Current Source is published twice a year by the Schenectady Section of the IEEE. If you are interested in volunteering for The Current Source or wish to submit material for consideration, please contact the editor.

Historical Tidbit
Sesquicentennial of Birth of Nikola Tesla
According to legend, Tesla was born precisely at midnight during an electrical storm in the village of Smiljan, in the present-day Croatia. Documents show that he was born on June 28, 1856 on the Julian calendar, which corresponds to July 10 in the present system.
Executive Committee member -
Committee usually meets monthly at lunch. Together they come up with the general membership activities you see advertised in the section. Programs can lunch programs, and/or evening seminars or tours in any technical, career development or social area. There is also the opportunity for involvement in Region 1 activities (Region 1 covers the Northeast). Executive Committee members tend to stay on the committee for four years and serve as chair during the fourth year. Each year we ask if you want to continue, so there is a chance to leave if needed. The following offices have specific responsibilities as shown.

Chair – Call and run Section Executive committee meetings. Work toward programming that creates value for members and returns their dues/rebates to them. Attend Regional meetings or designate a representative. Notify Regional leadership/secretary of voting proxy if a representative is sent. Ensure that year-end reports are submitted. Help coordinate meeting reports so that each chapter is credited with appropriate meeting activity. Be secondary check writer after the treasurer. Write IEEE Fellow nomination referrals as required.

Treasurer – Be present at lunch and Executive Committee meetings as much as possible. If there is a check-writing requirement, coordinate who will write/deliver check if you can’t attend. Keep track of Section treasury and bank accounts (located as required by IEEE). Coordinate and pay for PO box and mailing account as required. File year-end financial reports with IEEE as required.

Secretary – Be present at Executive Committee meetings. Issue minutes of same if in attendance. Write thank you letters to speakers. Help file IEEE on-line meeting reports.

Power Engineering Society Committee Chair and Member -
Work with other PES committee members to coordinate lunch meetings and/or evening seminars. Other program ideas are welcome. PES committee members typically spend four years on the committee culminating in chairmanship. Opportunity for sponsored travel to officer and section development events.

Industry Applications Society Committee Chair -
Work to coordinate lunch meetings and/or evening seminars that would be of interest to IAS members. The Executive Committee supports committee chairs. Opportunity for sponsored travel to officer and section development events.

Life Member Chapter Chair -
The Life Member Chapter Chair coordinates 2 – 3 events per year of interest to life members. Events could be anything from technical seminars to historical lectures to social events. The designation "Life Member" is applicable only to a member who has attained the age of 65 years and who has been a member of IEEE or one of its predecessor societies for such a period that the sum of his/her age and his/her years of membership equals or exceeds 100 years. Attend executive committee meetings as much as possible – at least several times a year to become familiar with the Section and its events. Executive committee meetings are at lunch on a weekday about 10 times a year and include lunch.

Steinmetz Committee Chair -
Heads a committee designated to plan and execute an annual dinner/lecture event in Schenectady in conjunction with Union College if possible. The speaker should be high-quality, being an engaging speaker and well accomplished in their field. The lecture is intended to be a public lecture with general interest in technology, education or both. A Steinmetz Trust pays for the lecture honorarium and travel expenses. An additional committee that is external to the Section administers the Steinmetz Trust.

Awards Chair -
There are many awards available from IEEE, on a regional basis and from technical societies. They recognize volunteering, and technical accomplishment. The Awards chair becomes familiar with what is available and tries to publicize and/or solicit nominations to bring some of this resource/recognition back to the Section. The Awards chair also tries to encourage people to upgrade to senior membership. The Awards chair can use the web site, member emails and the newsletter for publicity.

Section Historian -
Preserve and broadcast our proud Schenectady Section history. Plan methods for documenting current events.

Student Activities Chair - Stay in contact with RPI and Union student chapters. Support Future Cities competition, support other competition and mentoring opportunities as deemed appropriate. Guide career development programming that might be useful to student members. This can be direct participation or organizing other volunteers - email lists available!

PACE (Professional Activities) Chair -
Great programs and grants are available from IEEE for the purpose of professional development and training activities, this chair develops programming plans and obtains grants from IEEE to complete them.

Newsletter Editor/Coordinator -
This person collects articles written by other officers and members. The articles and columns are collected into an email and formatted by a printer that is familiar with our publication and how to mail it. It helps to attend the Executive Committee meetings and luncheons as often as possible so you are aware of what is newsworthy and can contribute to the writing when needed. Here is a link to our last newsletter.

http://www.ewh.ieee.org/r1/schenectady/newsletter.html

LOCAL SECTION AND CHAPTER OFFICES
by Rebecca Nold

Summer 2007
AWARD CATEGORIES:
- PROFESSIONAL
- SECTION
- GOLD MEMBER
- LIFETIME SERVICE

PROFESSIONAL CATEGORY:
The latest revision of the Professional Awards Category consists of awards in eight subcategories. They are as follows:
1. Technological Innovation (Academic)
2. Technological Innovation (Industry or Government)
3. Managerial Excellence in Engineering Organization
4. Outstanding Teaching in IEEE area of interest (University or College)
5. Outstanding Teaching in area of interest (Pre-University or College)
6. Enhancing relationship between IEEE and Industry
7. Enhancing the IEEE’s or Engineering Profession’s Image with the Public.
8. Outstanding Support for the Mission of the IEEE, RAB, REGION 1 and SECTION.

SECTION CATEGORY:
This reward is for recognition of a REGION 1 IEEE section rather than for the individual IEEE member. More explicitly, it is a PACE Award giving recognition to the section having achieved the highest level of advancing professionalism during the past year. This award is unchanged.

GOLD MEMBER CATEGORY:
This award is given to the individual(s) involved with GOLD activities who are recognized for singular achievement.

AWARD NOMINATION PROCEDURE OUTLINE:
To nominate a candidate, the Region 1 Sponsor shall:
1. Complete and sign the New Region 1 Awards Nomination Form.
2. Attach a two hundred word or less summary of the contributions which warrants this nomination.
3. Attach the candidate’s resume.
4. Send the Nomination form, summary, and resume to your Section Chair, who will sign and forward the package to the Chair of Region 1 Awards and Recognition Committee.

The nomination deadline date for the above awards is June 15th. The decision as to who will receive the awards will be made at the Annual Region 1 Meeting which is normally held in the summer or fall of each year.

ADMINISTRATION AND PRESENTATION:
1. The Region 1 Awards Committee will review all of the nominations received by the deadline.
2. The Committee will make a determination as to which candidates should receive an award. Then a formal recommendation will be submitted to the Region 1 Executive Committee.
3. The Executive Committee will then approve the Region 1 members who will receive the awards.

LIFETIME SERVICE CATEGORY:
This award includes $1,000 in cash! This award recognizes the personal efforts of those who have provided leadership, creativity, guidance, hard work and inspiration in a wide range of IEEE activities over a long period of time.

CAPITAL DISTRICT LEGO ROBOTICS ORGANIZATIONS
The overarching purpose of the First Lego League (FLL) is to promote interest in engineering among our next generation of students, including grade school students. The Capital Districts’ first ever FIRST Lego League Tournament to be held later this year needs judges, volunteers, and mentors. If you enjoy working with kids, and want to get them excited about engineering, then you can definitely have an impact by helping with this project. Or you can start a team, ideally through your child’s school. Each team is comprised of youngsters, age 9–14, with an adult coach. A challenge is announced in September and then tournaments are held throughout the world. More details can be found at www.FirstLegoLeague.org, including other teams and their scores.

Team registration began on May 1st, so now is an ideal time to get your team started before the challenge is revealed in September!

Contact info:
Dr. Stephen F. Bush
GE Global Research
e-mail: bushsf@research.ge.com
Bill Wulf gave the 68th Steinmetz lecture in October at the beautiful Memorial Chapel.

ABSTRACT

Thomas Jefferson founded the University of Virginia because, he said, a democracy requires an educated citizenry. Our society is increasingly dependent on technology, and correspondingly, our most important public policy issues hinge on an understanding of how that technology is created. That is, on engineering. I think Jefferson would be concerned since so few of our citizens can participate in informed discourse on these issues because they lack an understanding of engineering principles. Union College is one of the few liberal arts colleges that also teach engineering, so this talk will describe my thoughts on how to rectify the situation. I hope to get your feedback because I think the situation is more serious than most people realize!

Recent statements from his work as president of the NAE can be found at: http://www.nationalacademies.org/president/wulf.html

ABOUT THE AUTHOR

Bill Wulf received the first Computer Science Ph.D. ever awarded at the University of Virginia in 1968. He then joined Carnegie-Mellon University as Assistant Professor of Computer Science, becoming Professor in 1975. In 1981 he left Carnegie-Mellon and founded Tartan Laboratories and served as Chairman and CEO until 1988. In 1988-1990 he was Assistant Director of the National Science Foundation. In 1990 he returned to the University of Virginia as AT&T Professor and University. In 1997 he was elected President of the National Academy of Engineering, which operates under a congressional charter and presidential executive orders that call on it to provide advice to the government on issues of science and engineering.

More about the Steinmetz Lecture series:
http://engineering.union.edu/SteinmetzMemorialLectures/

Chandra Reis presents Dr. William Wulf the Steinmetz medal the evening of April 16, 2007 at Memorial Chapel, Union College.

Past Section Events

Lunch events are held on average once per month. Most of you are receiving notices electronically for every event. If you are not, please update your profile on the IEEE website. Any questions on how to do this can be sent to the newsletter editor. Events are also advertised on the local Section website at http://www.ewh.ieee.org/r1/schenectady/events.html. Please check often! Reservations are required due to the cost of the lunch (as paid by the Section). All events are free for IEEE members who RSVP by the deadline, $10.00 for non-members and all who fail to RSVP by the deadline stated for each event.

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<tr>
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<td>June 4-5, 2007</td>
<td>RPI</td>
<td>Short course on Solid-State Lighting at RPI</td>
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<tr>
<td>May 23, 2007</td>
<td>Union College</td>
<td>Stuff You Don’t Learn in Engineering School: Skills for SUCCESS in the REAL WORLD</td>
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<td>May 11, 2007</td>
<td>Union College</td>
<td>The Electric Mule: G.E. and the Erie and Panama Canals</td>
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<td>May 1, 2007</td>
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<td>Calculation of Electrical Machines by Tim Miller</td>
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<td>April 16, 2007</td>
<td>Union College</td>
<td>68th Steinmetz Lecture - Engineering as part of a Liberal Education?</td>
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<td>March 16, 2007</td>
<td>Brandon’s</td>
<td>Flywheels for use in Frequency Regulation on the Power Grid</td>
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<td>March 1, 2007</td>
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<td>Tour of the Albany Nanotech complex - College of Nanoscale Science And Engineering</td>
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<td>February 23, 2007</td>
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<td>February 15-16, 2007</td>
<td>Albany Marriott</td>
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<td>January 19, 2007</td>
<td>Brandon’s</td>
<td>Albany High Temperature Superconducting Cable Demonstration Project</td>
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<td>January 13, 2007</td>
<td>HVCC</td>
<td>Capital District Future City Competition</td>
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The Capital District has had a long history of innovations in electrical transmission and distribution, dating back to the integral involvement of GE personnel in the very first electrical transmission line at Niagara Falls. This project continues that tradition with a look at how new materials and new technologies can be brought to bear on the present electrical grid. This is the abstract from a lunch talk given to the membership by Chuck Weber of SuperPower.

More information can be found on the local Section website, under Past Events, at http://www.ewh.ieee.org/r1/schenectady/jan19_2007.html

To prove the feasibility and reliability of underground HTS cables, demonstration projects have been planned and executed around the world. In the United States there are currently three such demonstration projects underway. Although these projects have widely varying performance characteristics, such as operating voltage & current levels, they all have a common underlying goal to address the fundamental questions of how HTS cables will perform in a typical utility setting.

The Albany HTS Cable Project (ACP) is a collaborative effort between SuperPower (prime contractor/2G wire supplier), Sumitomo Electric Industries (HTS cable manufacturing, installation and testing/BSCCO wire supplier), BOC, a member of the Linde Group (Cryogenic refrigeration System (CRS)/ system monitoring), and National Grid (host utility/system protection). The program is funded by a combination of the aforementioned industrial partners, the Department of Energy (DOE) through its SPI program and the New York State Energy Research and Development Authority (NYSERDA).

The cable system that has been installed operates at 34.5 kV and has a nominal current carrying capacity of 800 Amperes. It comprises two sections; one being 320m long and the other 30m long. The two cable sections were pulled into underground ducts using conventional cable pulling techniques and were then joined together in an underground vault. The joining of two independent cable sections is important to show that lengths of HTS cable can be connected together to make a long cable installation possible. The key technology behind HTS cables is the ceramic-based superconducting wires, or tapes that, when cooled to a very low temperature (approximately - 200°C), have nearly zero resistance. The first phase of the ACP consists of two HTS cable sections made with Sumitomo’s BSCCO (or 1st generation) HTS wire; a 350m long return pipe, and the BOC-designed CRS. A follow-on phase of the program will replace the 30m BSCCO cable section with an equivalent length of cable made from YBCO (or 2nd generation) wire fabricated by SuperPower.

Following the installation of the cable system, a series of pre-energization testing was completed to verify its performance and that all back-up systems were working properly. Phase 1 of the ACP went into operation on the grid on July 20, 2006. In December 2006 SuperPower completed the fabrication and testing of 9.7 km of its 2G HTS wire and shipped it to Sumitomo Electric Industries in Japan for fabrication into the 30-meter cable for the project. This is the world’s largest delivery of 2G HTS wire to date and will constitute the first application of 2G HTS wire in any device to date. 2G HTS wire, which operates at higher temperatures and has better performance in background magnetic field, is expected to achieve price levels comparable to copper by the turn of the decade.
ABSTRACT:
The waning years of the 19th century saw a variety of efforts to reinvigorate an Erie Canal that had been overshadowed by railroads. One such project involved using electric power to replace the mules and horses that canal boats relied on. The Schenectady General Electric Company experimented with a variety of prototypes on local sections of the Erie Canal; none proved practical for use on the Erie Canal, but modified versions were put to use in the newly opened Panama Canal.

ABOUT THE SPEAKER:
Andy Morris is a member of the History Department at Union College. He specializes in 20th century U.S. History, and is currently involved in a project to preserve the remains of the Erie Canal in Schenectady County.