

IEEE's 125th Anniversary to be Celebrated at May 13 Meeting

More than a century ago, Alexander Graham Bell and 22 others came together in Washington, D.C., to form a society of engineers who were interested in the science of engineering, particularly telephony, telegraphy and radio. The group soon became the ninth branch of the American Institute of Electrical Engineers, founded in 1884. AIEE merged with the Institute of Radio Engineers to form IEEE in 1963. The Washington Section originally included the entire Washington metropolitan area. By the 1970s, membership had increased so much that the Northern Virginia suburban area became a separate section. "Snippets of the Last Forty Years," starting on page 5, offers recollections of the past few decades of IEEE activities in the National Capital Area.



A Tradition Continues—Jerry Gibbon (left), 1994-95 Chair of the Washington Section, presents the Alexander Graham Bell Gavel to Tim Weil, 2009 Chair. Each year the historic gavel, used by every chair since F.A. Wolff in 1903, is passed to the new chair.

Members, Chapters Asked to Provide Time Capsule Items

Assembly of a time capsule will take place at a joint meeting of the Washington Section and Northern Virginia Section on May 13 to mark IEEE's 125th Anniversary.

"We want to put together a collection of items to define IEEE's National Capital Area at this juncture in history and to communicate with future members and friends of IEEE," said Monica Mallini, chair of the Northern Virginia Section. "Participants will sign an archival scroll with greetings and messages for our future counterparts."

Chapters and individuals are requested to bring items for inclusion in the time capsule. The items will be documented; assembled with an archival kit to isolate, See **TIME CAPSULE**, p. 6

IEEE-USA Annual Meeting Focused on Energy Policy, Workforce, Membership



Energy Policy—Former CIA Director R. James Woolsey, Jr. (left) captivates IEEE-USA Annual Meeting delegates following his lunch address on energy dependence and national security on February 28 in Salt Lake City. Northern Virginia Section Vice Chair Barry Tilton is pictured second from right. The theme of the conference was "Engineering the Alternative Energy Debate." (Photo by Monica Mallini)

Barry Tilton Vice Chair, Northern Virginia Section

IEEE-USA had its annual meeting over the weekend of February 26 to March 1 in Salt Lake City. Five members of the Northern Virginia Section and three members of the Washington section attended.

The forum took place on multiple tracks with the technical focus being on energy issues, from greening the energy industry to efficiency, storage and education. Alongside these presentations and talks were a series of interactive workshops on membership issues, policy, and training a workforce for the new economic climate.

The message for much of the energy dialog was unsurprisingly somewhat dire. The infrastructure of our energy industry is aging, and (barring a radical change from the new stimulus) sufficient planning for renewal is not well supported. Most large new infrastructure projects suffer from a "not in my backyard" problem, as well as a large degree of public ignorance about matters such as the

overall contribution of individual green sources, the non-issue of electromagnetic waves around high power transmission lines, and the degree of cost subsidy in the current energy market.

There is also an aging trend in the energy workforce (as well as in much of the electrical engineering discipline in general), which will result in a difficult to fulfill demand for new engineers in the next 10 years.

See **IEEE-USA**, p. 12

Administrative Committee Meetings Canceled

The Administrative Committee Meetings of the Washington Section and the Northern Virginia Section will not be held in May. Instead the two sections are meeting jointly for the **IEEE 125th Anniversary Celebration** on May 13. See story above and Calendar announcement, p. 3.

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Baltimore Sections and Annapolis
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ON THE WEB**eScanner Calendar of Events**

The calendar is available at www.ieee.org/escanner. Check here
for events submitted too late for print publication.

IEEE National Capital Area Virtual Community

Exchange ideas and participate in discussions with local IEEE
members at www.ieeecommunities.org/ncac.

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EDITORIAL POLICIES AND PROCEDURES**Calendar Announcements**

Please submit calendar items in the format used in the Calendar of Events. You can send email to ncac-scanner@ieee.org. Events must have an IEEE or affiliate sponsor.

If possible, include a synopsis of the event and a biographical sketch of the presenter including academic background, current position, notable achievements, and IEEE and other professional affiliations.

Articles

Other contributions, such as reports on chapter events and other member activities, are most welcome. Please submit articles to the managing editor at ncac-scanner@ieee.org.

Advertising

Contact the advertising manager about ad rates and to place advertising orders. Ads must be submitted by the deadline below.

Deadlines

The editor reserves the right to set policies and procedures necessary to provide members with a newsletter that is informative and timely. Deadlines must be strictly observed to keep the publication on schedule. If you are planning an event and have insufficient information by the deadline, please contact the managing editor. The deadline for the upcoming issue will always be published on this page.

July-August issue deadline:
June 1, 2009

IEEE National Capital Area Scanner is published bimonthly by The Institute of Electrical and Electronics Engineers, Inc. Corporate Office: 3 Park Avenue, 17th Floor, New York, NY 10016-5997. It is sent automatically at a cost of \$1.00 per member per year (included in annual dues) to each member of the Washington and Northern Virginia Sections. Periodicals postage paid at New York, NY, and at additional mailing offices.

Postmaster: Send address changes to IEEE National Capital Area Scanner, 445 Hoes Lane, P.O. Box 1331, Piscataway, NJ 08855-1331. (ISSN 0894-0452)

calendar of events

Saturday, May 2, 2009

Career Survival for Engineers and Scientists in the 21st Century

- Sponsors:** IEEE-USA Career & Workforce Policy Committee, Washington Section, Northern Virginia Section, National Capital Area Consultants' Network
- Time:** Registration 8:00 am, program 8:30 am to 4:00 pm
- Place:** Virginia Tech Northern Virginia Center, 7054 Haycock Rd., Falls Church, VA
- Directions:** Located adjacent to the West Falls Church Metro station (Orange line). Parking is available on campus and at the Metro station.
- Cost:** Advance registration at URL below: \$10 for unemployed IEEE members or IEEE student members, \$25 for IEEE members, \$50 for non-members. Family plan: bring a spouse or family member for \$10 more. On-site registration will be available at a higher cost. Cash and check payments accepted at the door for advance and on-site registrations.
- More Info:** Topics include adapting to globalization, developing a career strategy, working as a consultant, communicating effectively, writing resumes, networking, and looking into emerging career fields. This workshop is eligible for 7.0 Professional Development Hours. Continental breakfast and lunch are included. See www.ieee.org/escanner for more information.
- Contact:** Register by 12:00 noon on Friday, May 1 at http://meetings.vtools.ieee.org/meeting_view/list_meeting/557. For more information or questions, contact Wally Lee at w.h.lee@ieee.org or 301-468-2418.

Saturday, May 2, 2009

IEEE National Capital Area Awards Banquet

- Sponsors:** Northern Virginia and Washington Sections
- Keynote Speakers:** Dr. Frederica Darema, Senior Science Analyst, Directorate for Computer and Information Science and Engineering, National Science Foundation; and Dr. Charles K. Alexander, Professor of Electrical and Computer Engineering at Cleveland State University, and former President of IEEE.
- Time:** Reception 6:30 pm, dinner 7:30 pm, program 8:30 pm
- Place:** Tysons Corner Marriott, 8028 Leesburg Pike, Vienna, VA
- Directions:** From the east or I-495, take Route 7 West, turn right on Towers Crescent Drive, then immediately right into the Marriott parking lot. From the west on Route 7, turn right onto Old Gallows Road just opposite the Marriott, proceed around to the left until you have completed almost a full circle, and turn left into the Marriott parking lot. Free parking.
- Cost:** \$75
- Contact:** Reservations required. See <http://ewh.ieee.org/r2/capitalarea/banquet09.html>.

Monday-Thursday, May 11-14, 2009

7th International Symposium on Hysteresis Modeling and Micromagnetics

- Sponsors:** IEEE Magnetics Society, National Institute of Standards and Technology, American Physical Society, American Mathematical Society, The George Washington University Institute for Magnetics Research
- Time:** Reception 6:00-8:00 pm Monday; technical sessions all day Tuesday-Thursday.
- Place:** National Institute of Standards and Technology, Gaithersburg, MD
- More Info:** Pre-registration is required. See the conference website at www.metallurgy.nist.gov/magnet/hmm2009/index.html.
- Cost:** \$575.
- Contact:** hmm2009announce@gmail.com

Tuesday, May 12, 2009

Aeromovel: A New Technology for Urban Mobility

- Sponsor:** Land Transportation Committee of the IEEE Vehicular Technology Society and American Society of Mechanical Engineers
- Speaker:** Lee Rogers
- Time:** Lunch 11:30 am, presentation 12:00 noon
- Place:** American Public Transportation Assoc., 11th Floor Conference Room, 1666 K Street NW, Washington, DC
- Directions:** Take the Metro to Farragut North station (Red Line, use K Street exit) or Farragut West station (Orange and Blue lines, use 17th Street exit).
- More Info:** All interested persons are invited.
- Cost:** \$20 cash at the door for lunch.
- Contact:** Please RSVP by 4:00 pm Friday, May 8 to Karl Berger at karl.berger@dcm-va.com or 703-803-7917.

Wednesday, May 13, 2009

IEEE 125th Anniversary Celebration

- Sponsors:** Northern Virginia Section, Washington Section
- Time:** 6:00-9:00 pm
- Place:** Virginia Tech Advanced Research Institute, 4300 Wilson Blvd., Suite 750, Arlington, VA
- Directions:** From Ballston Metro Station (Orange line), turn right at top of escalator then left on the street. Proceed two blocks toward Macy's, turn right and walk one block to Ballston Point at the intersection of Wilson Blvd. and Glebe Rd. If driving, see www.ari.vt.edu/ari_directions.html. There is a parking garage in the building with a \$1 charge for 3 hours. After 6:00 pm, there is limited free street parking.
- More Info:** See story, p. 1.
- Cost:** 125 cents. A limited number of sponsorships are available for \$125 and will include recognition.
- Contact:** Preregister at http://meetings.vtools.ieee.org/meeting_view/list_meeting/467.

For questions, contact Monica Mallini at m.a.mallini@ieee.org for Northern Virginia Section members, or Tim Weil at trweil@ieee.org for Washington Section members.

Thursday, May 14, 2009

Life Members Meeting

- Sponsor:** Life Members
- Time:** 12:00 noon
- Place:** Dolley Madison Library, 1244 Oak Ridge Ave, McLean, VA
- Directions:** Take Exit 46 from the Beltway and proceed on Route 123 North to McLean, VA, about 2 miles. After crossing Old Dominion Dr., turn left at the next street, Ingleside Ave., and then left on Oak Ridge Ave. The library is on the left.
- More Info:** A light lunch will be served.
- Contact:** RSVP to Dave Booth at 540-364-1350, 703-346-3540, or dbooth@ieee.org.

Saturday May 16, 2009

◆ Next Generation Service-Oriented Networks: Modeling, Pricing and Optimization

- Sponsors:** Communications Society (Northern Virginia, Washington, and Baltimore chapters)
- Speaker:** Michael Devetsikiotis, Ph.D., Dept. of Electrical and Computer Engineering, North Carolina State University
- Time:** 10:00 am to 2:00 pm
- Place:** LTS, 8080 Greenmead Drive, College Park, MD
- More Info:** See Diamond story, p. 9. Dr. Devetsikiotis is a Communications Society Distinguished Lecturer.
- Contact:** Debi Siering at siering@ieee.org.

Tuesday, May 19, 2009

Lunar Mini-RF Radars, Their Hybrid Polarimetric Architecture, and Other Remote Sensing at JHU/APL

- Sponsor:** Geoscience and Remote Sensing Society
- Speakers:** Dr. R. Keith Raney and Mr. Frank Monaldo, Johns Hopkins University Applied Physics Laboratory
- Time:** Networking & light refreshments 4:00 pm, presentation 4:30 pm
- Place:** Johns Hopkins University Applied Physics Laboratory, Parsons Auditorium, Building 1, 11100 Johns Hopkins Rd., Laurel, MD
- Directions:** See www.jhuapl.edu/newscenter/visitor/mapcampusold.asp. Use the Building 1 Entrance. Park in the visitor's lot near Building 1 or in any undesignated space.
- More Info:** For the presentation abstracts, speaker biographies and other information, see http://ewh.ieee.org/r2/no_virginia/grss.
- Contact:** James C. Tilton at j.tilton@ieee.org.

See CALENDAR, p. 4

CALENDAR, from p. 3

Tuesday, May 19, 2009**◆ The Art of Consulting, Part 4: Getting Paid (and Other Legal Hassles)**

Sponsor: National Capital Area Consultants' Network

Speaker: Dr. Bob Miller, Trace Systems, Inc.

Time: 6:00-8:30 pm

Place: Fairfax County Government Center, 12000 Government Center Parkway, Conference Room 2/3, Fairfax, VA
Directions: See www.fairfaxcounty.gov/maps/locatMap.htm. From I-495, take I-66 West to Exit 55B Fairfax County Pkwy North (Route 7100). Turn right onto Fair Lakes Pkwy East. Turn right at light onto Monument Dr. Turn right at light onto Government Center Pkwy. The Government Center is on the left.

More Info: See Diamond story, p. 9. All IEEE members, student members, and guests are welcome. Sandwiches will be served.

Cost: \$20 cash at the door.

Contact: Please register by 12:00 noon on May 18 at http://meetings.vtools.ieee.org/meeting_view/list_meeting/413. For additional information about the workshop, contact Monica Mallini at m.a.mallini@ieee.org.

Tuesday, May 19, 2009**Washington Academy of Sciences Annual Meeting and Awards Banquet**

Sponsor: Washington Academy of Sciences

Speakers: Dr. Brendan Kelly, Office of Polar Programs, National Science Foundation

Time: 6:00 pm

Place: The Atrium at Meadowlark Botanical Gardens, Vienna, VA

Directions: From the Beltway, take Route 7 West toward Tysons Corner. Drive 4.5 miles on Route 7, turn left onto Beulah Road and drive 2.5 miles to the entrance on the right.

More Info: See www.washacadsci.org/Banquet/Index.htm.

Cost: Member and one guest \$45 per person; non-members and additional guests \$50 per person; after May 12 \$60 per person. To purchase tickets, see the Reservation Form link at the URL above.

Contact: For questions, contact banquet@washacadsci.org.

Thursday, May 21, 2009**LEED and Energy Savings for New and Existing Buildings**

Sponsors: Power Engineering Society, Industry Applications Society

Speaker: Bonnie Remar, General Electric

Time: 6:00-8:00 pm

Place: Virginia Tech Advanced Research Institute, 4300 Wilson Blvd., Suite 750, Arlington, VA

Directions: From Ballston Metro Station (Orange line), turn right at top of escalator then left on the street. Proceed two blocks toward Macy's, turn right and walk one block to Ballston Point at the intersection of Wilson Blvd. and Glebe Rd. If driving, see www.ari.vt.edu/ari_directions.html.

There is a parking garage in the building with a \$1 charge for 3 hours. After 6:00 pm, there is limited free street parking.

More Info: A light dinner buffet will be served, followed by the program. All interested persons are invited.

Cost: Free for IEEE members; \$10 for non-members.

Contact: Rich Phillips at rdphillips@ekfox.com or 800-520-4771 ext. 113.

Thursday, May 21, 2009**◆ SCAMPI C Appraisal Using the CMMI for Acquisition**

Sponsors: Computer Society, American Society for Quality (ASQ) Section 509 Software SIG, Society for Software Quality (SSQ)

Speaker: Carol Klingler, Lead Software Systems Engineer, MITRE Corp.

Time: 6:30 pm

Place: Video teleconference with sites in McLean and Silver Spring. Addresses are provided at the registration link below.

More Info: See Diamond story, p. 9. All interested IEEE members and guests are invited to attend. Pizza and soda will be served.

Cost: Free

Contact: Advance registration is required to enter the facilities. Please register online at www.asq509.org/ht/d/sp/i/2499/pid/2499. If your plans change, email ankums@mitre.org to cancel your reservation.

Tuesday, June 2, 2009**Washington Section Administrative Committee Meeting**

Time: 6:45 pm

Place: American Association for the Advancement of Science (AAAS), 1200 New York Avenue NW, Washington, DC

Directions: Use the 12th Street entrance. The AAAS building is one block from Metro Center (Red, Orange and Blue lines). Street parking is free after 6:30 pm (no parking 4:00-6:30 pm). There is a pay parking lot at the intersection of 9th St. and New York Ave., and underground parking at 14th St. and New York Ave. See map at www.aaas.org/dcwest.pdf.

More Info: All interested IEEE members are welcome.

Contact: RSVP to Monica Taysing-Lara at m.taysinglara@ieee.org or 202-725-2225.

Thursday, June 4, 2009**Navigating the Job Search Today**

Sponsor: Professional Communication Society, Society for Technical Communication, Computer Society

Time: 6:00-8:30 pm

Place: NRECA Conference Center, 4301 Wilson Blvd., Arlington, VA

More Info: No matter where you are in your career, you should always be prepared to get back into the job market. Come learn the latest trends in the job search process and start laying the groundwork for your next job search. This event will be a progression. Each speaker will host a 25-minute roundtable discussion. At the end of each discussion, you will move to another table

with a different topic and speaker.

Cost: IEEE or STC members \$15; non-members \$20. Includes dinner buffet.

Contact: Preregister with STC through http://meetings.vtools.ieee.org/meeting_view/561. For questions, contact Hugh Owen at hugh.owen@ieee.org.

Tuesday, June 9, 2009**Virginia Railway Express: Planning for Growth**

Sponsor: Land Transportation Committee of the IEEE Vehicular Technology Society and American Society of Mechanical Engineers

Speaker: Mark Roeber, Manager, Public Affairs and Government Relations, Virginia Railway Express

Time: Lunch 11:30 am, presentation 12:00 noon

Place: American Public Transportation Assoc., 11th Floor Conference Room, 1666 K Street NW, Washington, DC

Directions: Take the Metro to Farragut North station (Red Line, use K Street exit) or Farragut West station (Orange and Blue lines, use 17th Street exit).

More Info: All interested persons are invited.

Cost: \$20 cash at the door for lunch.

Contact: Please RSVP by 4:00 pm Friday, June 5 to Karl Berger at karl.berger@dcm-va.com or 703-803-7917.

Wednesday, June 10, 2009**Northern Virginia Section Administrative Committee Meeting**

Time: Dinner 6:00, business meeting 6:45 pm

Place: Fairfax County Government Center, 12000 Government Center Parkway, Conference Room 8, Fairfax, VA

Directions: See www.fairfaxcounty.gov/maps/locatMap.htm. From I-495, take I-66 West to Exit 55B Fairfax County Pkwy North (Route 7100). Turn right onto Fair Lakes Pkwy East. Turn right at light onto Monument Dr. Turn right at light onto Government Center Pkwy. The Government Center is on the left.

More Info: All interested IEEE members are invited to attend.

Contact: Jeff Poston at poston@ieee.org or 703-983-7020.

Thursday, June 11, 2009**◆ GPS Principles of Operation**

Sponsor: Life Members

Speaker: Dr. Demetrios Matsakis, U.S. Naval Observatory

Time: 12:00 noon

Place: Dolley Madison Library, 1244 Oak Ridge Ave, McLean, VA

Directions: Take Exit 46 from the Beltway and proceed on Route 123 North to McLean, VA, about 2 miles. After crossing Old Dominion Dr., turn left at the next street, Ingleside Ave., and then left on Oak Ridge Ave. The library is on the left.

More Info: See Diamond story, p. 11. A light lunch will be provided to those who make a reservation.

See CALENDAR, p. 9



Celebrating 125 Years
of Engineering the Future

Snippets of the Last 40 Years...

A Shared History

Until 1971, the Washington Section included the entire Washington metropolitan area, consisting of the District of Columbia, suburban Maryland and Northern Virginia. In 1972, the latter became the Northern Virginia Subsection, and then a full-fledged Section in 1977. The Washington Section continues to include six Maryland counties and seven in West Virginia.

The National Capital Area Council (NCAC) was formed in 1977, in order to coordinate certain common activities of the two sections, such as general administration, publication of a joint newsletter, management of the annual awards banquet, and conferences held in the area. The council was dissolved at the end of 2002, but the two sections have continued to cooperate on issues of common interest, and to run joint chapters of many technical societies.

Thus, the histories of the Washington Section and the Northern Virginia Section are intertwined over the last four decades.

Professional Activities

The Washington Section initiated the Professional Activities Pilot Experiment (PAPE) in 1972, the first such professional activity anywhere in IEEE. It was motivated by the massive layoffs of engineers at the end of the Apollo program, and the objective was to impress upon the government the need to retain the engineering workforce and preserve its expertise.

More than a dozen members participated in PAPE. They met almost once a month for more than a year and came up with recommendations for IEEE to influence government policies on workforce-related issues. For example, the government could phase out several programs over a few years, instead of terminating many of them at once, as had happened at several NASA Centers across the country.

The PAPE activity also led to the formation of a Congressional Fellowship program in the mid 1970s, under which an IEEE member was selected to serve on the staff of a member of Congress or a Congressional Committee for a year, while on leave from his or her normal job. The Fellow was paid a stipend by IEEE, with partial funding by some companies.

PAPE was led by Saj Durrani as Chair and Richard Backe as Vice Chair, both of whom later became Washington Section Chairs. It was fully supported by the

Washington Section officers and some U.S. regional directors. However, the idea of getting involved in "professional" issues was opposed by some technical societies and non-U.S. regional directors, who wanted the IEEE to work on technical issues only. Extended debates led to the formation of the U.S. Activities Committee (USAC) and then the U.S. Activities Board (USAB). Marc Apter remembers that Hyatt in Crystal City had just opened and PACE-USAB was the first group to meet there, even though all the meeting rooms weren't finished yet. Such meetings resulted in many new projects.

Dan Benigni recalls a crucial meeting in 1995, when the IEEE Board was being urged by some Technical Activities Board directors to vote down professional activities; as a counter proposal, Dan and some others were ready with a motion to dissolve certain technical societies which opposed such activities. Luckily, cooler heads prevailed and USAC/USAB was allowed to remain active. A new set of bylaws was written during 1995, and the USAB was replaced by IEEE-USA in 1997. Dan was the last USAB Chair—or the first "Past President" of IEEE-USA, although that office did not exist before 1997!

PAC, PACE & Related Activities

The Washington Section has had a Professional Activities Committee (PAC) since the 1980s, which runs selected projects with partial funding from the Region. The name was changed at the national level to Professional Activities Committee for Engineers (PACE), when PAC became generally accepted as the acronym for "political action committee."

Both Sections have held several Member Professional Awareness Conferences (MPACs) over the years to familiarize members with professional issues.

IEEE volunteers also set up booths at job fairs, where information about IEEE is handed out to visitors. Before they passed away, James Strother of the Northern Virginia Section and John Margosian of the Washington Section were the moving force behind activities at job fairs.

Consultants' Network

In 1989, the NCAC PACE published the first issue of *Spirit*, a newsletter for entrepreneurs. The issue contained a membership application for the IEEE Entrepreneur Network (EN). Several months later, as a result of a member survey, the EN was expanded to include consultants, annual dues were established, and mem-



Washington Centennial—The Washington Section celebrated its 100th anniversary at the Cosmos Club in 2003. Officers attending included (left to right) Jerry Gibbon, Doug Holly, Haik Biglari, James Christian, Roger Kaul, Howard Needham, Harvey Newman, Richard Benjamin, Harry Sauberman, and Saj Durrani. (Photo courtesy of Doug Holly)

bers were encouraged to publish their business cards in the *Scanner* and use an electronic bulletin board. In addition, a separate network was proposed to support employment assistance needs of unemployed members. Hence, the National Capital Area Consultants' Network was formed in 1990 as a PACE subcommittee. PACE Chair James Strother, who had just completed a term as Chair of the Northern Virginia Section, filled the role of Advisor to the subcommittee. The first Chair of the Entrepreneurs and Consultants Network was Raymond Mataloni.

Outreach to Students

Both Sections have supported Student Professional Awareness Conferences (SPACs) at colleges and universities for many years.

In recent years, the Washington Section has supported several engineering projects by IEEE Student Branches at the University of Maryland and the University of District of Columbia. Harry Sauberman and James Christian have been the lead interfaces for such projects, and Tim Weil is now strongly promoting involvement of students in IEEE activities.

Both Sections send judges to regional science fairs. Over the years, the science fair participation has expanded and shifted from local schools to the regional level in an attempt to cover as much of the section's geographic territory as possible. Three top winners from each fair are selected to receive IEEE special awards, with cash stipends and certificates. The first place IEEE awardees from each regional fair are invited to the annual awards banquet. Meeting the science fair winners with their projects is a favorite aspect of the banquet.

The Northern Virginia Section works through its affinity groups and student branches to reach out to pre-university students. The Graduates of the Last Decade (GOLD) chapter has championed projects that introduce school children to engineering through interactive, hands-on projects. With encouragement and guidance from GOLD volunteers, participants can assemble electronic projects, such as an LED flasher and a light-sensitive tone generator. Another favorite chapter activity is to collect donated elec-

trical and electronic equipment and to provide it to the youth to take apart and examine under volunteer supervision, to satisfy their curiosity about how things work. Other events target young women. GOLD has partnered with the DeVry University student branch to host electronics workshops at Young Women in Science and Technology events. GOLD volunteers are also regular participants at the IEEE-USA exhibit at the annual Discover Engineering Family Day during Engineers Week in February.

The Northern Virginia Section has also supported local high school FIRST robotics teams with financial support and mentors.

In 2004, the Northern Virginia Section established the very first IEEE Student Club at Thomas Jefferson High School for Science and Technology in Fairfax County. Northern Virginia Section volunteers Amarjeet Basra and Dave Booth led this pilot project, assisted by members of the DeVry University and George Mason University Student Branches. Since 2004, other IEEE Student Clubs have been established in Northern Virginia, and the project has been replicated elsewhere.

Northern Virginia Past Chairs Amarjeet Basra and Murty Polavarapu have each been recipients of IEEE Regional Activities Board Achievement Awards citing their roles in promoting IEEE to college and pre-college students.

Special Activities

Leadership Training Program—An officer training day is held annually to orient new section and chapter officers.

Washington Section Centennial—This was celebrated in 2003. A special commemorative dinner was organized by Doug Holly at the Cosmos Club, where Jerry Gibbon gave a short history of the Section, tracing it back to its formation by Alexander Graham Bell and other scientists in 1903.

Number of Fellows—In the late 1980s and early 1990s, the Washington Section usually ranked just behind the Japan Section (which consisted of the whole country), in terms of the number of members elected as Fellows. This was partly due to the efforts of the Fellows Committee.

See SNIPPETS, p. 6

SNIPPETS, from p. 5

Affiliations

The two Sections are affiliated with the Washington Academy of Sciences (WAS) and the District of Columbia Council of Engineering and Architectural Societies (DCCEAS).

Several Past Chairs of the Washington section have served as WAS officers, including Jerry Gibbon (a past president), Kiki Ikossi (2009 president-elect), Saj Durrani, Haik Biglari, and Gerry Christman. Rex Klopfenstein, a Past Chair of the Northern Virginia Section, was president of WAS in 2000. Similarly, Saj Durrani served as president of DCCEAS in 2006-07.

International Activities

Sister Sections—The Washington Section formed a Sister Section relationship with the Delhi Section in 2001, which was formally approved by the Regional Activities Board in 2002 and announced at the Sections Congress held in Washington in 2002. Shyam Bajpai, the Washington Section Chair, led this effort; it was the first such action in IEEE history, and has been followed by other Sections.

Sections Congress—The Washington Section co-hosted the IEEE Sections Congress in 2002. It was the brain child of Ron Aasen, and took four years of planning.

Conferences

The Sections have hosted a number of major IEEE Conferences, including most

recently the Engineering Management Conference in 2000, the Radar Conferences in 2000 and 2005, and GLOBECOM 2007.

GLOBECOM 2007 was the culmination of five years of planning, first with Bill Wu as the General Chair who promoted the idea with the Communications Society, and then with Jerry Gibbon as the General Chair and Tim Weil as Patron Chair. This highly successful conference had more than 2,000 attendees, and produced a net surplus, which was shared by the Sections and the Communications Society.

National Leadership

The Washington and Northern Virginia Sections are home to many members who have had highly visible roles in IEEE's technical societies and councils (including numerous presidents and vice presidents); served on committees and boards at all levels of IEEE and IEEE-USA; edited magazines, transactions, and newsletters; and held section, chapter, and regional offices and appointments.

Two Washington Section members (who passed away a few years ago) were elected President of IEEE: Dr. Bruno Weinschel and Dr. Leo Young.

Some other members, who are still with us, have served as IEEE Vice Presidents, and Regional Activities Board (RAB) or Technical Activities Board (TAB) Directors. They include:

Vice Presidents: Marc Apter (2004-2005); Dan Benigni, Dennis Bodson, and Saifur Rahman (2006).

Region 2 Directors: Marc Apter (2001-

2002), Dan Benigni, Dennis Bodson (1983-84), and Thom Tullia (2005-06).

Region 2, informally called the Eastern Region, comprises much of Delaware, New Jersey, Maryland, the District of Columbia, Pennsylvania, West Virginia, Ohio, and small portions of Virginia, Kentucky, and Indiana. Region 2 was formerly divided into four areas, with the Southeastern Area defined as a wide belt from Delaware to the Ohio Valley. At the time that Northern Virginia received approval to become a Section, the Southeastern Area Chair was Forrest Hogg, a resident of Northern Virginia who had been Washington Section Chair when Northern Virginia achieved Subsection status in 1972.

Other past **Area Chairs** include Washington Section Past Chairs Sattish Aggarwal, Saj Durrani, Gideon Kantor, and Antonino Ingegneri.

Many years later, a new South Area was defined as Washington, Baltimore and Northern Virginia Sections, collectively the majority of Region 2's member population. The first **South Area Chair** was Jerry Gibbon, followed by Murty Polavarapu and Gerard Christman.

Technical Division Directors: Deborah M. Cooper (Division V Director, 2008-2009); William G. Duff (Division IV Director, 1997-1998); Saj Durrani (Division IX Director, 1984, 1985), Nahid Khazenie (Division IX Director, 2000-2001); Edward Della Torre (Division IV Director, 2007-2008); and Helen Wood (Division VIII Director, 1991-1992).

There is an interesting story behind Saj Durrani becoming the first Director

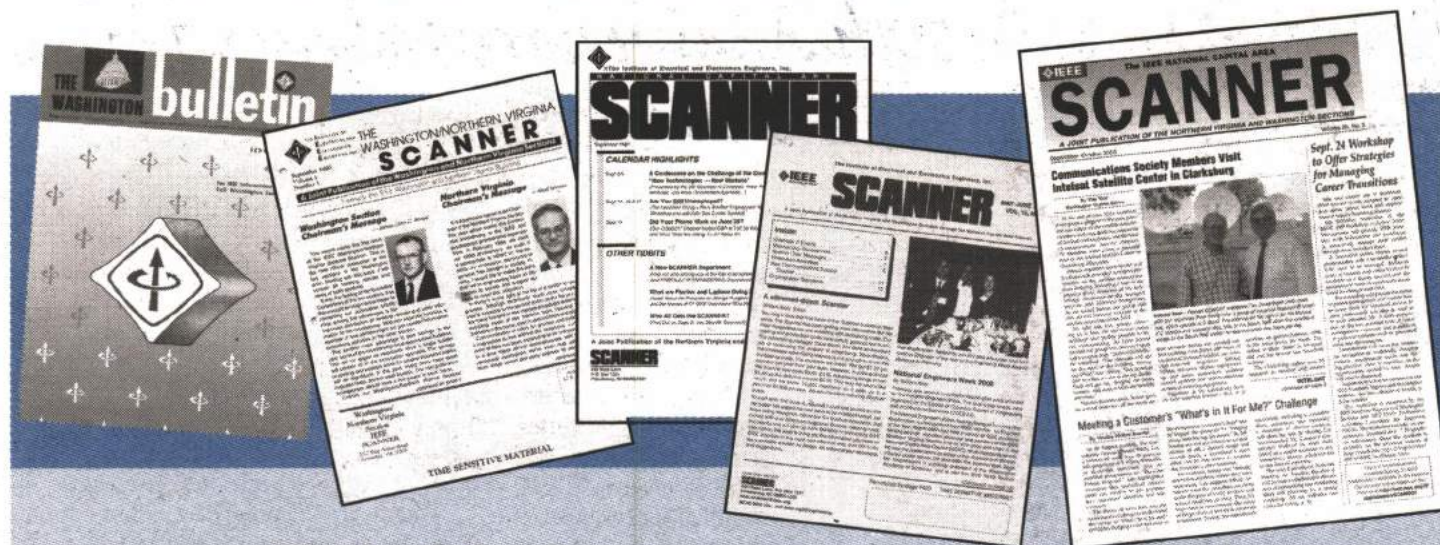
of Division IX, which was formed after the IEEE Bylaws were changed in 1983 to have 10 Divisions, just like 10 Regions.

Initially, IEEE had 10 Regions but only 8 Divisions, and while most of the income came from conferences and other activities organized by the technical societies, most of the budgetary decisions were made by the Board, which was dominated by Regional Directors.

As President of the Aerospace and Electronic Systems Society in 1982 and 1983, Durrani persuaded the Society Presidents Forum to propose an IEEE Constitutional Amendment, mandating that the number of Divisions must equal the number of Regions. The proposal gathered the required level of support and was presented to the Board in 1983 for putting it on a ballot, but the Board suggested a Bylaws change to that effect, which could be done without a ballot. The Forum accepted this and the Board approved the Bylaws change, thus re-grouping the societies and forming two new Divisions.

In recognition of his initiative, the Board appointed Durrani as the first Director of Division IX to serve for two years (1984 and 1985), while the first such Director of Division X was to be elected later.

This article is taken from a history of the Washington Section prepared by Saj Durrani, with inputs from Marc Apter, Dan Benigni, Dennis Bodson, Shyam Bajpai, and Don Rickerson. Additional information about the Northern Virginia Section was provided by Monica Mallini.



Birth of the Scanner

Prior to the *Scanner*, each Section published a newsletter called the *Bulletin*. The *Washington Bulletin* of the 1960s was a glossy magazine with a color cover (a different color every month!). In September 1969, the new fiscal year opened with a new Editor, Mel Abramovich, a new printer, and a new "austere" but dignified 4-page newsletter format, initially without advertising. In 1973-74, the *Bulletin* was published jointly between Washington and Baltimore Sections on a trial basis. The *Washington Bulletin* resumed as a separate newsletter in September 1974.

In 1977, the newly formed Northern Virginia Section began publishing its own *Bulletin*. Northern Virginia Section reports that in 1982, the cost of publishing and mailing the newsletter was \$16,825, which was offset by \$6,785 in advertising revenue. The Sec-

tion's rebate was only \$6,200, reflecting a membership of 3,879. The Section was able to bear this expense only because of two windfalls that year. The cost of producing and mailing separate newsletters with overlapping circulation (due to the existence of joint chapters) motivated the Sections to name a Joint Bulletin Committee to investigate, advise, and implement a joint newsletter. (Elimination of the newsletter was briefly considered as an option but was not pursued.)

The first *Joint Bulletin* was proposed for July-August 1983, to coincide with the change in section officers. Necessary tasks, such as approval of a written agreement by each Section and contracting for publication, printing, and ad management services, could not be completed in time. The *Northern Virginia Bulletin*, Volume 6, Number 6 (June/

July/Aug 1983) reported newly elected officers and the Section's 10th birthday, while the final *Washington Bulletin* was the July-August 1983 issue. The records show that as the publication date approached, the name "Joint Bulletin" was used as the working title, while discussions of the actual name centered around "Electron" or "Elektron," even up to the initial layout. When the first joint newsletter appeared in September 1983, it was named *Scanner*. The Sections' written archives are silent about the origin of this name.

Monica A. Mallini, P.E., has been studying the *Scanner* archive to prepare a paper to be presented at the 2009 IEEE Conference on the History of Technical Societies. The above is a very brief preview of her history of the *Scanner*. Look for a longer article in a future issue.

TIME CAPSULE, from p. 1

protect, and preserve each treasure; and packed inside a stainless steel tube conditioned to absorb moisture and oxygen.

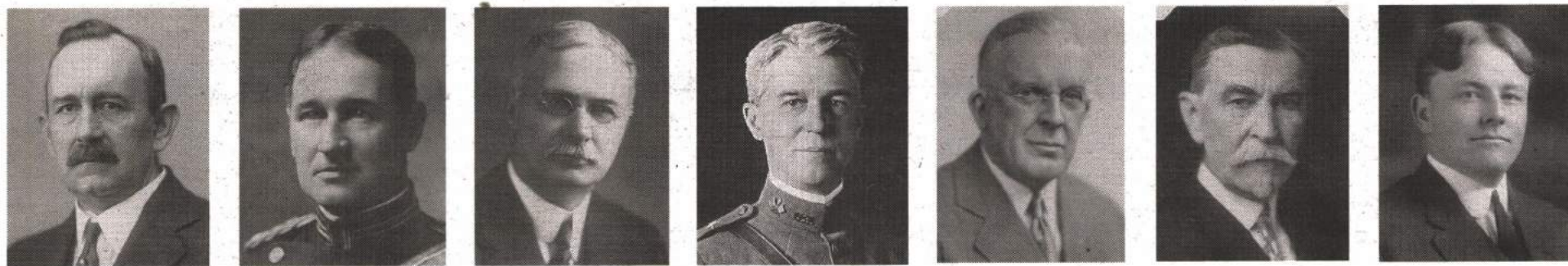
The assembled tube will be sealed and registered with the International Time Capsule Society and placed in storage for 25 years, to be opened on the occasion of IEEE's Sesquicentennial Anniversary in 2034. The American Institute of Electrical Engineers, one of the organizations that merged to form IEEE, was founded on May 13, 1884.

Time capsule guidelines from the Smithsonian's Museum Conservation Institute specify no liquids, rubber, PVC, adhesives, or batteries. Consider copying newspaper articles, photographs and documents on acid free archival quality paper rather than encapsulating the originals. Include instructions to retrieve or play back recorded or digital content from media.

Technical societies and affinity group chapters may also present posters, displays, videos or oral histories at the meeting. Refreshments will be served.

Members, guests and friends of IEEE are welcome, however space is limited. Please preregister at http://meetings.vtools.ieee.org/meeting_view/list_meeting/467. The cost is \$1.25 (yes, one dollar and twenty-five cents) per person, collected at the event. For more details, see the Calendar announcement, p. 3.

Join us at Virginia Tech's Advanced Research Center in Ballston to celebrate the history of IEEE and the Washington and Northern Virginia Sections!



Happenings on the IEEE Global History Network

The IEEE Global History Network (GHN) was launched on September 21, 2008. In the four months since then, the growth has been modest, but steady as we expected. Presently there are more than 5,800 Wiki entries in the IEEE GHN, which have generated nearly 15,100 edits. More than 2,000 files of media and PDF documents have been uploaded to the GHN. The feedback from people who used the site has been very positive. We expect the site's growth to accelerate in 2009 as we intensify our marketing efforts.

Archival material, in the form of .pdf files, forms an important subset of these uploads. The IEEE New South Wales Section in Australia is leading the way in showing how—through the uploading of archives to the GHN—IEEE Sections can easily preserve their organizational memory and make it easily accessible to all members. The GHN's goal is to have

all the societies, regions, and sections using it to preserve their important historical documents, as well as write and maintain the history of their organizational units.

The Center's large oral history collection is being moved to the GHN. In the process, History Center staff has structured the resulting transcripts to make it easier for the user to find information within each interview. In parallel with reformatting the transcripts, staff is producing digital masters from the analog sound recordings of the Center's approximately 450 past interviews. To enhance the user's experiences, we are producing MP3 extracts from the digital masters and embedding them within the body of the transcript. For example, the user can now hear Vladimir Zworkyn explain, in his own voice, how he and David Sarnoff, in the 1930s, convinced the Soviets to buy their television technology because of its

great potential as a propaganda tool.

The History Center acquired a wonderful collection of video interviews of prominent engineers and scientists done by Dr. Clarence Larson during the 1970s and '80s. Thanks to a generous financial gift from the Larson family, all these interviews are being converted to Flash format and will be streamed on the GHN. Some have already been loaded.

In 2009 the switch to all-digital television broadcasting in the U.S. will take place. Two recent contributions to the GHN, "The Foundations of Digital Television" and the "Digital Television: the Digital Terrestrial Broadcasting Standard" offer fascinating, in-depth histories of digital broadcasting standards.

The book, *Electricity: The Magic Medium*, published by the IEEE Canadian Region, tells the story of the history of electrical technology in Canada. Long out of print, this book has been hard to find.

The Canadian members of IEEE will be pleased to learn that this book is now on-line on the IEEE GHN.

We are excited about the prospect that soon, the IEEE Milestone process—from submitting a proposal to writing the supporting nomination document—will be done on-line within the IEEE GHN. The site's Wiki technology will help organizational units develop their nomination article, and also make constructive feedback available from the IEEE members using the IEEE GHN.

We invite all our readers to explore and contribute to the IEEE Global History Network at www.ieeeeghn.org. (The Washington Section has a page at www.ieeeeghn.org/wiki/index.php/IEEE_Washington_Section_History.)

Reprinted from IEEE History Center, Issue 79, March 2009, p. 3.



50th Anniversary Volume Traces AIEE Branch from 1902 to 1953

The photographs on this page are all taken from a unique scrapbook assembled in 1953 for the 50th anniversary of the Washington Branch of the American Institute of Electrical Engineers.

The thick volume contains a roster of the founding members, typewritten stories and data, selected meeting minutes, and a few meeting announcements and programs. There are photographs of each of the first 50 chairs (or chairmen) of the AIEE branch, as well as group photos of the 1951-52 and 1952-53 branch officers.

A written narrative and several sets of photographs compare the world of 1903 to the modern technology of 1953. The pairs of photographs include views of the Potomac Electric Power Plant, pole lines vs. underground cable, telephone switchboards, and streetcars.

From the beginning, the Washington branch was a leader in the electrical engineering field. "In 1904 the Branch played

host for a day to a large group of foreign engineers who were attending the International Electrical Congress held in St. Louis on September 12, 1904," wrote the anonymous author. "For the use of the visitors a special book entitled, *Washington Electrical Handbook*, was printed." Topics included electric railways, Washington's telephone system, and the use of electricity by various government departments including the Army, Navy, and Government Printing Office.

News reports transcribed from the *Washington Star* follow the group's visit to Washington on September 20, 1904. "Men who develop and train 'Artificial Lightning,' as electricity has been termed, are visiting Washington in force today. Electrical engineers representing England, Canada, Italy and all parts of the United States reached this city about 7:30 o'clock this morning on a special train from Pittsburgh," the paper reported.

Top: The first seven chairs of the Washington Branch of AIEE were (from left): F.A. Wolff (1903-04), Samuel Reber (1904-05), E.B. Rosa (1905-06), Edgar Russell (1906-07), P.G. Burton (1907-08), P. Betts (1908-10), and E. Wheeler (1910-12). Contrary to popular myth, Alexander Graham Bell never chaired the AIEE Washington Branch, although he is listed as founding member.

Left, middle: "A laboratory in the National Bureau of Standards in 1903. Dr. F.A. Wolff on the right." According to another page in the book, Dr. Wolff was a professor of physics and electrical engineering at Cocoran Scientific School, Columbian University (now George Washington University) in addition to his work for the U.S. Office of Standard Weights and Measures. He served as the first chair of the AIEE branch.

Left, bottom: "1903 Photograph of the Potomac Electric Power Company Power Plant."

Educational Tour Reveals 'Secrets' of NIST Center for Neutron Research

By Harry Sauberman, Chapter Chair, Nuclear and Plasma Sciences Society

On a beautiful Saturday morning, February 21, 2009, approximately 50 IEEE members and their guests participated in a site visit and educational tour at the NIST Center for Neutron Research of the National Institute of Standards and Technology (NIST).

The event was sponsored by the Washington and Northern Virginia chapters of the Nuclear and Plasma Sciences Society, the Engineering in Medicine and Biology Society, and the Computer Society.

Our hosts for the event were Lei "Raymond" Cao, Ph.D., staff scientist, Nuclear Methods Group, Analytical Chemistry Division, NIST, and R. Gregory Downing, Ph.D., Nuclear Methods Leader, Analytical Chemistry Division, NIST. Both gave outstanding introductory presentations. Several other NIST scientists also provided presentations as we toured the facility in five small groups.

Scientific Significance

After parking across the street from the NIST main gate, the group proceeded, in carpool fashion, through a carefully monitored security check, and then to the Center for Neutron Research on the sprawling NIST campus.

The focal point of the Center is the 20 megawatt nuclear research reactor that produces a continuous stream of neutrons that are produced from the fission of uranium 235. It was noted that this is small compared to an electrical power nuclear reactor that is generally on the order of 1000 to 3000 megawatts. However, it is quite large when compared to most other research reactors in the world.

In terms of scientific significance, the NIST reactor is considered to be a premier neutron scattering facility for basic materials research in the U.S. One of only four major facilities in the U.S., and perhaps two dozen worldwide, it ranks second only to the international reactor facility in Grenoble, France in the quantity of its research output.

It was explained that all of the neutrons that emanate from the reactor have undergone a scattering from the heavy water moderator surrounding the fuel elements. Each time a neutron scatters from a heavy water molecule, it gives up a significant fraction of its energy. The moderation process draws the neutron energies down to nominally thermal levels, with the emerging neutrons having roughly the same broad energy distribution as the ambient air molecules in the laboratory. For most of the various scattering instruments, a much narrower energy slice is extracted from the broader distribution of energies by reflection from a crystal monochromator, or by a mechanical velocity selector, in order to tailor the beams for specific experiments. A few instruments also make use of neutron velocity measurements to study certain dynamical properties of materials.

NIST scientists explained that what makes this facility especially useful and powerful is the insertion of a cold neutron moderator near the reactor core, in which liquid hydrogen is cooled down to 20 degrees Kelvin (20 degrees above ab-

solute zero). Neutrons that impinge on one side of the cold moderator diffuse through a very thin layer of liquid hydrogen, emerging on the other side with much lower energies. Although the neutrons do not come into full thermal equilibrium with the hydrogen, they cool down significantly. They emerge from the cold source with high intensity and then proceed through a number of guides that are glass tubes with a special coating. Once the neutrons are slowed down to sufficiently low energies, they literally bounce down the tubes for lengths of tens of meters and proceed into the laboratory area.

NIST was able to build the existing guide hall laboratory and set up the many experimental areas because of its cold neutron moderator and guide tube system. Construction plans and activities are underway to build a second guide hall laboratory area in order to use the emanating neutrons as efficiently as possible. Up to five new experimental stations will be set up, and the research capability is expected to increase by at least 25 percent.

The question was asked as to whether any neutrons can escape into the environment. It was explained that the glass tubes are lined with boro-silicate material that has a high capture cross-section. The tubes would absorb the major of the few neutrons that might otherwise come out. In addition, there is heavy shielding around the guide tubes and many of the instruments. Therefore, the background radiation in the laboratory differs very little from standing in the sunlight outside the building.

Research Projects

Another question asked was who are the clients of this facility. Last year over 600 workers came to perform measurements at the facility, with more than 2,200 scientists participating overall, including those doing supporting work at their home institutions. The NIST Center for Neutron Research is a national user facility that can be used to study all types of materials and many research fields. Some of the projects that caught my attention included:

- Examination of the stresses in the steel that led to the collapse of the World Trade Center in New York City on 9/11;
- Examination of the thin layers of artificial cell membranes grown on substrates as a means of evaluating their structure and function;
- Examination of hydrogen confined in titanium fan blades in jet engines;
- Examination of nanoparticles for use as reference materials;
- Examination of water dynamics inside hydrogen fuel cells for automotive applications. It was explained this is possible due to the exceedingly high penetrating nature of neutrons and their sensitivity to water and hydrogen.

An attendee asked if neutron experiments could be set up to distinguish a cancer cell from a normal cell. While this would be difficult, it could be that cancer cells exhibit different structural, density and thermal characteristics from normal cells and may afford an opportunity

VOLUNTEER OPPORTUNITIES

Looking for a Few Good Engineers!

By Saj Durrani
Past Chair, Washington Section

It is widely accepted that we must improve the level of science and mathematics taught in our schools, if we want to maintain our position as a technological leader in the world. Several organizations are providing volunteers to help in this effort. Most of the volunteers are retirees, but some are still holding jobs that allow them a flexible schedule. A volunteer spends a day—or as little as an hour—every week to assist a teacher in a school. A majority of the local volunteers are from the sciences—physics, chemistry, biology, etc.—and only a few are engineers. We now need a few more engineers to help in these programs.

Don Rea, a retired chemist, is leading the local effort to coordinate such efforts through a program called Seniors for Science and Engineering (SSE), which is supported by the American Association for the Advancement of Science (AAAS). Don organized a symposium on the subject on March 19, which was held in the AAAS HQ building in Washington. I attended the symposium and found it to be very informative and inspiring, because it enabled many potential volunteers to learn about the program, exchange ideas, and hear the experiences of those already participating in the program.

Representatives of the AAAS also

addressed the meeting, and offered to help in our efforts to expand the program.

The local volunteers are assisting elementary and middle school teachers in Montgomery and Fairfax counties. Each county has an SSE coordinator, who works with the county's school authorities and puts the volunteer in touch with a conveniently located school that welcomes his or her knowledge and experience. In the symposium, several volunteers talked about their positive experiences with students.

Don's current objective is two-fold: increase the number of volunteers in these counties, and extend the program to adjacent counties, such as Howard, Prince George's, Prince William, and Arlington. Training will be provided to volunteers for Montgomery and Fairfax Counties. Engineers in other counties, who are concerned about science education and would like to explore the formation of projects in their counties, should contact Don for background information and support. Thus, plenty of help and guidance is available.

I would strongly encourage you, especially if you are a retiree, to join the program and help promote science literacy of our students.

If you are interested, please contact Don Rea at donaalrea@aol.com. You will enjoy the experience!

Families Can Participate in Section Activities

By Betsy Gibbon
Family Liaison, Northern Virginia Section

When Monica Mallini asked me to serve as the Northern Virginia Section family liaison services coordinator, I was not sure what she had in mind.

After a few section meetings, it became clear that she wanted someone to help coordinate the membership outreach, to assist with running a few activities during the year, and to serve as a point of contact for volunteers to these events.

In other words, someone to help coordinate the family volunteers who want to enjoy the experience of participating in IEEE events, and to show the members' families that they are included in the Northern Virginia Sec-

tion's outreach and can be part of our greater body of active participants. Why not?

Every year the section has a number of events suitable for family participation, such as picnics, cookouts, luncheons, tours, the awards banquet, and yes, school outreach such as science fairs, competitions and special Engineers Week programs that recognize our students who are interested in science and engineering.

I would like you to ask your family's volunteer to contact me at jtgibbon@verizon.net with a message about how he or she would like to participate as a volunteer with the Northern Virginia Section. I will provide a list to Monica and coordinate the volunteers' responses for upcoming events.

for examination by neutron analysis. The NIST scientist indicated that nothing has been done in this area. However, NIST would welcome a proposal wherein this sort of activity could receive a formal review and consideration.

The NIST research reactor is manned continuously, 24 hours a day, 7 days a week from a control room. It was explained that it has one of the highest percentages of up-time of any reactor in the United States. The facility is periodically inspected by the Nuclear Regulatory Commission (NRC) and the Environ-

mental Protection Agency (EPA).

The site visit and tour concluded with a get-together lunch at the Dogfish Alehouse (across the street from NIST's main entrance) for all the attendees, compliments of the three sponsoring IEEE chapters. Special thanks are due to Dr. Cao and Dr. Downing for the superb technical information they presented, for their friendliness in welcoming the IEEE community to the NIST campus, and for endorsing our vision to create a bridge for future collaborative opportunities. It was a wonderful day.

CALENDAR, from p. 4

Contact: RSVP to Dave Booth at 540-364-1350, 703-346-3540, or dbooth@ieee.org.

Thursday, June 18, 2009**PES/IAS Meeting**

Sponsors: Power Engineering Society, Industry Applications Society

Speaker: TBA

Time: 6:00-8:00 pm

Place: Virginia Tech Advanced Research Institute, 4300 Wilson Blvd., Suite 750, Arlington, VA

Directions: From Ballston Metro Station (Orange line), turn right at top of escalator then left on the street. Proceed two blocks toward Macy's, turn right and walk one block to Ballston Point at the intersection of Wilson Blvd. and Glebe Rd. If driving, see www.ari.vt.edu/ari_directions.html. There is a parking garage in the building with a \$1 charge for 3 hours. After 6:00 pm, there is limited free street parking.

More Info: A light dinner buffet will be served, followed by the program. All interested persons are invited.

Cost: Free for IEEE members; \$10 for non-members.

Contact: Rich Phillips at rdphillips@ekfox.com or 800-520-4771 ext. 113.

Tuesday, June 23, 2009**The Art of Consulting Continues**

Sponsor: National Capital Area Consultants' Network

Speaker: Dr. Bob Miller, Trace Systems, Inc.

Time: Dinner 6:00; presentation 6:45 pm

Place: National Science Foundation, Room 110, 4201 Wilson Blvd., Arlington, VA

Directions: NSF is one block south of the Ballston Metro station (Orange line). Exit the Metro, take the sidewalk slightly right of the Metro exit (past the Metro bus depot) one block, and enter the NSF building at the entrance closest to the corner of North 9 St. and Stuart St. If driving, parking is available at Ballston Common mall directly across Wilson Blvd. from the NSF building.

More Info: Pre-registration is required for NSF security. Dinner will end promptly at 6:45 pm. No food is allowed in the meeting room.

Cost: \$20 cash at the door.

Contact: Please register by 12:00 noon on June 22 at http://meetings.vtools.ieee.org/meeting_view/list_meeting/647. For questions, contact Monica Mallini at m.a.mallini@ieee.org.

Tuesday, June 23, 2009**Computer Society Meeting**

Sponsors: Computer Society, American Society for Quality (ASQ) Section 509 Software SIG, Society for Software Quality (SSQ)

Speaker: TBA

Time: 6:30 pm

Place: Video teleconference with sites in McLean and Silver Spring. Addresses are provided at the registration link below.

More Info: All interested IEEE members and guests are invited. Pizza and soda will be served.

Cost: Free

Contact: Advance registration is required to enter the facilities. Please register online at www.asq509.org/ht/d/sp/i/2499/pid/2499. If your plans change, email ankums@mitre.org to cancel your reservation.

diamond stories

Tuesday, May 19, 2009

◆ The Art of Consulting: Getting Paid (and Other Legal Hassles)

The final installment of the Art of Consulting series will cover an often neglected aspect of doing business: getting paid. More specifically, we'll talk about why that might not happen, and defensive strategies you can use to make sure that you do get paid. Contracts are important, but a contract cannot protect you completely. There are simple but vital steps that you need to take from the very beginning to avoid problems. Relax—we'll show you how.

Bob Miller, the workshop leader, owns Trace Systems, Inc., which provides custom software and electronic design services. Dr. Miller is experienced in bringing high tech products to high volume production. He managed the group at Zenith that first put Surface Acoustic Wave (SAW) filters into color televisions for the first time. These devices are now mass produced worldwide, in quantities of over 50 million per year. He has a Ph.D. in electrical and computer engineering from the University of Illinois at Urbana. He received three George Westinghouse Innovation Awards for commercial product concepts. He has six patents, over 25 publications, and is the principal author of Acoustic Charge Transport, published by Artech House in 1992. Visit his website at www.tracesystemsinc.com.

Saturday May 16, 2009

◆ Next Generation Service-Oriented Networks: Modeling, Pricing and Optimization

With advances in various networking technologies creating connections with enormous bandwidth and low latency, transport services offered by telecommunication service providers are becoming commoditized. In order to differentiate their services against those of their competitors, these service providers are seeking to enable value-added services layered on top of the com-

modity transport service. At the same time, businesses across all industries realize the need to be flexible and adaptable to change in order to succeed in today's information-driven economy.

A robust, scalable, and dynamic communication and integration infrastructure is necessary to connect service consumers and providers within and between corporations. Service-oriented, networking (SON) is an emerging architecture that directly addresses this need by enabling network devices to operate at the application layer to provide functions such as service-based routing, content transformation, and protocol integration to consumers and providers. We anticipate that enterprise applications of the future will leverage distributed SON deployment patterns where large numbers of SON devices coordinate with peers using network-wide application-specific policies, in order to determine the appropriate points in the network to perform configuration changes based on prevailing network and application conditions.

Modeling and adaptation of resources based on state and workload (current or predicted) is highly desirable in emerging high-performance computing and information service systems, on the path towards completely "autonomic" services. In this seminar, we provide an overview of our efforts at NC State, in collaboration with IBM, Cisco and Nortel, to develop frameworks and algorithms for modeling of emerging next generation network-based services, predictive and dynamic resource allocation, traffic modeling and adaptive scheduling.

We describe techniques in a modeling and control framework that includes quality of service, pricing and economic considerations. We present an overview of approaches that we have used for profit or utility-oriented scheduling in service access nodes. We are currently working to apply similar techniques to Web services, network appliances and multimedia services.

Michael Devetsikiotis was born in Thessaloniki, Greece. He received the Dipl. Ing. degree in electrical engineering from the Aristotle University of Thessaloniki in 1988, and the M.S. and Ph.D. degrees in electrical engineering from North Carolina State University, Raleigh, in 1990 and 1993, respectively.

In 1993, Dr. Devetsikiotis joined the Broadband Net-

works Laboratory at Carleton University, Ottawa, Canada, as a post-doctoral fellow and eventually became an associate professor. In 2000, he joined the Department of Electrical and Computer Engineering at NC State, where he is now a professor.

Dr. Devetsikiotis is a Senior Member of IEEE and a member of the honor societies of Eta Kappa Nu, Sigma Xi, and Phi Kappa Phi. He served as Chair of the IEEE Communications Society Technical Committee on Communication Systems Integration and Modeling and is now a member of the Communications Society's Education Board. He has served as an editor or on the editorial board of several technical publications, and has co-chaired several IEEE technical conferences. He was the workshops chair for IEEE GlobeCom 2008, and will co-chair the Quality, Reliability and Performance Modeling (QRPM) Symposium at IEEE GlobeCom 2010.

Thursday, May 21, 2009

◆ SCAMPI C Appraisal Using the CMMI for Acquisition

This presentation, "Boldly Going Where Few Have Gone Before: SCAMPI C Appraisal Using the CMMI for Acquisition," will describe lessons learned from performing a successful SCAMPI C appraisal using the CMMI-ACQ. The presentation will emphasize practical guidance that can be used by others performing appraisals against the CMMI-ACQ. Topics in the presentation will include:

- Applicability of CMMI-ACQ specific practices to the government program office, contractors performing program management office functions, and suppliers.
- Areas of the CMMI-ACQ that may be difficult to appraise because they are often performed by a separate government organization.
- Differing experience needs of a CMMI-ACQ appraisal team versus a CMMI-DEV appraisal team.
- Preparing the appraisal team for using the CMMI-ACQ.
- Areas of the CMMI-ACQ that may be confusing to appraisal team members new to the CMMI-ACQ.

See **DIAMOND STORIES**, p. 11



Speech Processing—(left to right) Tim Settle, past chair of the Northern Virginia SPS chapter; Penny Hix, treasurer; speaker Prof. Joseph Picone, and Jeff Poston, chair. (Photo by Dan Schwed)

SPS Seminar Introduces Nonlinear Speech Processing Techniques

By Jeff Poston
Chair, Northern Virginia Chapter,
Signal Processing Society

The Northern Virginia chapter of the IEEE Signal Processing Society (SPS) hosted the technical seminar "Nonlinear Statistical Modeling of Speech" by Prof. Joseph Picone on March 25.

He began the talk by reviewing the state of the art in speech processing with an emphasis on acoustical models; that is, the models that link spoken sounds to a word. He noted that automatic word recognition in spontaneous, conversational speech is a formidable problem in practice. For example, a common habit of speakers is the shortening of expressions so that the phrase "Did you get" can be-

come "Diyuge" in terms of the actual uttered sounds.

Prof. Picone noted how the conventional modeling approaches such as Hidden Markov Models (HMM) and Gaussian Mixture Models (GMM) have led to modern speech processing systems employing thousands of parameters and suffering the consequently high computational load.

Taking inspiration from the theory of nonlinear dynamics and chaos, Prof. Picone and his students at Mississippi State hope to develop models that are robust to the variations of everyday speech while having a lower computational demand than conventional models. He cited the phase locked loop found in many communications systems as an example of a nonlinear process that is robust to variations from nominal conditions.

One research direction drawn from nonlinear dynamics analysis is to map measured speech signals to a phase space, a higher dimensional representation, for the purpose of finding a pattern that uniquely identifies the spoken sound, even when confronted by the variations found in ordinary speech. Another research direction is to form a hybrid of the nonlinear models with the older HMM and GMM-based models.

To date Prof. Picone's research has demonstrated some word recognition accuracy improvements in quiet environments, but the results have been mixed in noisy environments.

Prof. Picone's seminar, held at MITRE in McLean, VA, had a lively audience interaction, and he shared many anecdotes from his years in industry and academia on the folly of over-fitting a speech processor design to one set of test data.

For information about previous SPS seminars or the chapter's upcoming events please see the chapter website at http://ewh.ieee.org/r2/no_virginia/spc.

The Northern Virginia SPS chapter is always seeking new technical presentations on signal processing topics. If you are interested in offering such a seminar please contact me at poston@ieee.org.

Professionalism Emphasized at GMU Event

By MacQuynh Dang

On Wednesday, April 1, the IEEE Student Branch at George Mason University held its annual SPAC (Student Professional Awareness Conference) to promote the importance of professionalism.

The IEEE Student Branch had the honor to have Dr. Timothy Settle, treasurer of the Northern Virginia Section, and Mr. Murty Polavarapu, chair of the IEEE Nanotechnology Council chapter, as the two guest speakers for SPAC event. In addition, the student branch also welcomed Dr. William Sutton, the associate chair of GMU's electrical and computer engineering department, and Dr. Jill K. Nelson, IEEE's faculty advisor.

Dr. Settle and Mr. Polavarapu shared their experiences, important tips, and information to help students understand why professionalism is an essential quality to have. After the presentations, GMU students had the opportunity to enjoy food and discuss both technical and so-

cial topics with the guest speakers, faculty and staff.

Attendance exceeded expectations, and this event was a big success because it provided the opportunity for students to interact with professors outside the classroom, and also to learn more about the real world from experienced engineers in the electrical engineering field.

SPAC is a annual conference that is organized and promoted by IEEE. The most important goal of SPAC is to educate and raise awareness about the value of professional behaviors and actions among students and future graduates. These lessons will be the crucial knowledge for students as they prepare to join the workforce after graduation.

The student branch at GMU will hold a SPAC as an annual event for many years to come and the branch wants to extend the invitation to students from other institutes, professionals, and employers to attend the future events.

Robot Speedway Contest Returns in October

The Washington and Northern Virginia Chapter of the Robotics and Automation Society (RAS) and the University of Maryland's Electrical and Computer Engineering (ECE) Department will hold the Second Annual Autonomous Robot Speedway Competition (ARSC) on October 24, 2009 at the University of Maryland campus in College Park.

This event invites teams of IEEE members, university students, and robotics club members to acquire a deeper appreciation of the state-of-the art and challenges that are currently the focus of research in robotics and automation.

Competing teams must build and demonstrate a robot capable of traveling one mile on an oval track outlined with orange cones. Competitors will be scored on speed and distance traversed as well as on a technical presentation about their robot and algorithms.

The first annual ARSC, organized by

Melanie Vida and Raj Madhavan, focused on mobile robots autonomously navigating a course that included a double-sided, elliptical course of orange cones. The autonomous platform that navigated between the cones at the fastest pace while displacing the fewest number of cones (in addition to a number of scoring metrics) was deemed to be the winner.

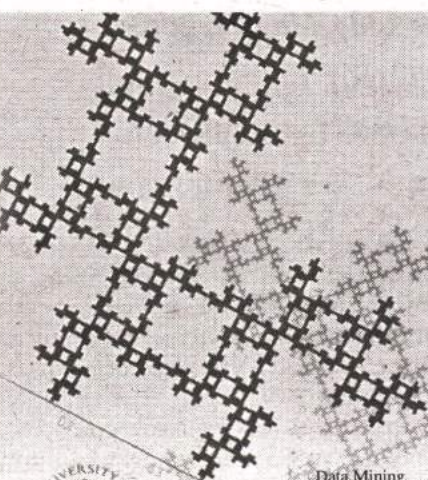
Last year's first place prize of \$500 and the third place prize of \$100 were made possible by an RAS Local Chapter Grant, which also supported some of the infrastructure costs. ECE was a co-organizer of the event.

Scoring metrics and rules of the 2008 competition are at www.robotronics.org/competitions.html and <http://exploring.external.lmco.com/Robotics2009/Speedway/speedway.html>.

Information about this year's contest will be available soon at <http://ewh.ieee.org/r2/washsec/ras>.

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IEEE Volunteers Help WETA—Taking calls from public television viewers during pledge week are (left to right, starting second from left) Syed Ahmed, Northern Virginia Section Past Chair; Haik Biglari, Washington Section PACE Chair; and Fari Schlake, Washington Section Director. A dozen IEEE members and staff demonstrated their support for community activities and helped increase engineering awareness by participating in the March 5 pledge night, which raised \$10,000 for WETA.

A Visit to FOSE 2009: Cloud Computing, Cyber Security, Tweets

By Pete Sypher, Scanner Editor

FOSE 2009, held at the Walter E. Washington Convention Center March 10-12, is the main computer-electronics show oriented toward government activities. This conference consisted of about 200 booth exhibits, seminars, workshops, and keynote speeches. This was the 33rd annual conference of FOSE.

FOSE stands for Federal Office Systems Exhibition, but considering that the reach of federal systems extends from space to body wires, far from the office, only the acronym is used these days. Two other shows, Gov-Sec and U.S. Law, shared the convention facilities and the keynote speeches.

Tuesday, March 10 started off with a presentation by Ed Henry, CNN Senior White House Correspondent, who told stories of his covering the White House starting with the Clinton Administration. He noted that news reporting has speeded up in recent years, with the Internet and blogging, and this has good and bad aspects. While his speech was not particularly oriented toward government systems or cyber security, he did give insights on how the highest level of government reacts to events.

Low Expectations for Government Websites

Chris Anderson, editor-in-chief of *Wired* magazine, delivered the first keynote address, on Tuesday, March 10. The main theme of his presentation was that government should adopt some of the Web user participation tools that are found on websites such as Google and Wikipedia. Mr. Anderson gave two examples of state and county websites that match the low expectations of users. One was the Delaware state tax page that went down on the last day taxes were due. There was no uproar: people were resigned to government web outages. The other example was the California town of Truckee website for people who had received traffic tickets. Instead of giving information on where to send checks, or how to schedule a court date, the site provided little more than a phone number. Yet, government is not behind in all websites; there are some good sites, and we should remember that the government sponsored Internet development. The main things standing in the way of faster progress are outmoded client/server software, security and privacy rules, archive rules, and a lack of urgency and pressure. Mr. Anderson further remarked that the smallest companies can innovate better than bigger ones. An example is Twitter, Inc., founded in 2006, with 34 employees and about five million users.

Mr. Anderson gave an example of a local government agency that has a website inviting feedback from visitors. Often, web user participation brings to light ideas never thought of by government content providers. He acknowledged legal and security difficulties with this approach.

Mr. Anderson described his experience with cloud computing. He uses Google spreadsheets and word processor applications almost exclusively, stores his files in the cloud, where file backup is automatic; he doesn't have to transfer files from one computer to another, and all this is free.

DIAMOND STORIES, from p. 9

Thursday, June 11, 2009

◆ GPS Principles of Operation

Dr. Demetrios Matsakis, head of the Time Service Department of the U.S. Naval Observatory will review how GPS works, emphasizing the many improvements being planned in the constellation and at the USNO, which provides the time reference for GPS. New frequencies are being made available, coordination with Galileo and other Global Navigation Satellite Systems is being established, and the USNO itself has embarked upon an ambitious plan to provide more precise time to the constellation. This includes new frequency standards, a new building to house them, and an improved theoretical and electronic infrastructure.

Cloud Computing

The keynote on Wednesday, March 11 was given by a team of five Hewlett-Packard executives, on what HP is doing in providing computing services to the federal government. One major effort these days is cloud computing. This is basically providing servers with applications and storage for user's files. From the standpoint of the user, it doesn't matter where the servers are or exactly how the services are rendered, these things are done somewhere in the cloud. HP offers multilevel security, so its products can be elaborate. A user can pay for server time by credit card or MIPR (military interdepartmental procurement request).

One of the HP presenters described an interesting idea for evaluating industrial processes and even civil transportation systems. The energy required, measured in joules, is estimated for each step manufacturing a product, for example. That would include the energy expended in the mine, transporting the ore, refining it, and all the follow on steps to final delivery to the customer. Alternative ways would be similarly analyzed and then compared.

"Shocked but Not Surprised"

Louis Freeh, the FBI director during the Clinton Administration, delivered on Thursday March 12 the keynote on the third day. There was standing room only for this keynote, in a room of capacity about 600. Mr. Freeh outlined the history of consolidation of military and civil security, including cyber security. This country originally did not have federalized standing forces (except possibly for the Navy); it met emergencies by using *posse comitatus*. In the days of our country's founding, a standing army was thought by many to be a threat to the nation. Even today, in contrast with almost all other democracies, the U.S. doesn't have a federal police force. The FBI has authority to deal with only certain types of crimes. Until 1933, FBI agents didn't carry weapons or make arrests. To arrest someone, an FBI agent had to get a sheriff or police officer to make the arrest.

This country has always played catch-up when a crisis happened. Intelligence has always lagged when a new threat emerged. Mr. Freeh gave two examples, Pearl Harbor and 9/11. It was a well-known fact that the Japanese Imperial Navy was planning an attack on our Pacific Navy, and Osama bin Laden was under indictment for his known connection with the Kobar Towers and U.S.S. Cole attacks. In Mr. Freeh's words, we were "shocked but not surprised" in the case of both Pearl Harbor and 9/11.

Following 9/11, funding for FBI and NSA cyber security operations dramatically increased. The same reluctance to centralize and increase security in the telecommunications area has emerged. [Note: We have kept secret, as newspaper readers know, the extent of our surveillance of telephone conversations and Internet traffic. We have not publicized the fact that we launched an all-out cyber attack on Iraq during the 2003 invasion, according to an article in Issue 51 (2007) of *EYE SPY*, a British intelligence magazine.]

Mr. Freeh concluded his speech by saying that we need strong leadership from the White House; the bureaucracy will not coordinate intelligence efforts by itself.

Vivek Kundra, the federal government's Chief Information Officer, gave the final presentation of the conference. His theme was "finding the innovative path, avoiding bureaucratic quick sand." Right now, there are 10,000 information systems in the federal government, and there is a need to standardize and reduce that number. We need to use commercial off-the-shelf systems as much as possible.

Twitter: A New Form of Networking

This year FOSE invited participants to tweet their experiences at the convention. Twitter is a social networking service for sending updates known as *tweets*. Tweets are text-based posts displayed on the sender's update page. Users can send and receive updates via the Twitter website, or short messaging service (SMS), or via other services.

A February 2009 Compete.com blog entry ranks Twitter as the third largest social network after MySpace (second) and Facebook (largest). To get a feel for Twitter, go to <http://search.twitter.com>, and then put in a topic of interest in the search window that comes up. To read some spicy tweets, type "aig" in the search window, as the news story about bonuses to AIG employees broke the same week FOSE was held.

Usually I see someone from IEEE when I go to one of these electronics-computer events, but in the three mornings I was at FOSE I didn't recognize anyone. If you weren't in government or military, you had to pay \$95 to get in, more if you attended tutorials. The exhibit floors weren't very crowded, and many of those working the booths looked hungry for business.

Although I no longer work or consult in government systems, it was an uplifting experience for me; I liked the keynote addresses and seeing the current offerings in this field, and I think the time there was well spent.

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Hung C. "Jimmy" Lin (1919-2009)

Professor Hung C. "Jimmy" Lin, long-time professor of electrical engineering at the University of Maryland, died March 5 of lung cancer. He lived in Silver Spring. Born August 8, 1919 in Shanghai, he attended Shanghai's Chiao Tung University, graduating in 1941. He was a prolific inventor of circuit components found in radios, TVs, cameras and computers. He created the first cleanroom for component fabrication at the University of Maryland, one of the first such facilities in the U.S.

Dr. Lin was elected an IEEE Fellow in 1969 "for contributions to semiconductor electronics and circuits and pioneering of integrated circuits." In 1990, Dr. Lin was inducted into the Innovation Hall of Fame at Maryland's Clark School of Engineering. He received the J.J. Ebers Award from the IEEE Electron Devices Society. He continued to mentor students well past his official retirement in 1990.

After earning his bachelor's degree, he was an engineer for Chinese radio broadcasting companies before coming to the U.S. in 1947. He received his master's and doctoral degrees from the University of Michigan and the Polytechnic Institute of Brooklyn, respectively, in 1948 and 1956.

During his years at RCA, CBS and Westinghouse in New Jersey, he developed the lateral transistor, a key part in solid-state audio amplifiers. Other inventions included the active noise can-

cellation circuits used in noise-cancelling headphones and other popular devices.

According to University of Maryland Professor Martin Peckerar, "everyone he came in contact with knew Jimmy simply as this: a good man, a person who influenced your life for the better. That, more than anything, made him an ideal teacher and friend."

"My dad loved being an engineer and had determined to be an engineer since he was 12 years old," recalled his son, Dr. Robert Lin. "For many of the Chinese of that generation, they felt that engineering was part of the modernization that

China needed to emerge from its not so long ago feudal traditions. Obviously the competition to become an engineer was intense and only those who were very bright could get into colleges to study engineering."

"Luckily my dad had ample math capabilities and made the cut in China. Later he earned a Ph.D. in the U.S. the hard way, by working full time while attending grad school. He was fortunate to benefit from the focus on defense during the cold war years, but some of his inventions were not immediately capital-



Professor Lin

ized on by the companies he worked for. Eventually his accomplishments were recognized by the IEEE and the University of Maryland, where he settled into academia. I think he loved engineering more than anything else in life."

Professor Lin was an avid tennis player, known as a college tennis star in China in the late 1930s.

Survivors include his wife of 59 years, Anchen Lin of Silver Spring; two sons, Dr. Robert Lin of New York City and Daniel Lin of Hong Kong; three sisters; two brothers; and three grandchildren.

Compiled by Pete Sypher, Scanner Editor, from a Washington Post obituary and the recollections of Martin Peckerar and Robert Lin.

IEEE-USA, from p. 1

Former CIA Director James Woolsey had a more positive outlook on the energy issue, asserting with references that there is a composite solution to the problem, involving spending enough to convert most cars to electric or hybrid (also accelerating the removal of older vehicles from use) and advanced solar and wind power combined with next generation batteries for storage and load balancing.

Workshops on finding and keeping a job in the new economy were both informative and timely. The material from these presentations is available at www.ieeeusa.org/calendar/conferences/annualmeeting/2009/video/default.asp.

Overall, the four-day IEEE-USA meeting was well worth the trip.

Editor's Note: In the next issue of the Scanner, Fred Rosenberger will share his experiences at the IEEE-USA meeting.

"He loved engineering more than anything else in life."

Senior Members

Congratulations to the following new Senior Members in the Northern Virginia (NV) and Washington (W) Sections:

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Timothy Barton (NV)
Anthony Brown (W)
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Osama Farrag (W)
Hao Howie Huang (W)
Richard C. Linger (W)

Kevin D. Maxson (NV)
John A. Pasour (NV)
Mark J. Rosker (NV)
Craig Schlenoff (W)
Amitabh Varshney (W)
Donald Yeung (W)

If you are interested in becoming a Senior Member, please see www.ieee.org/seniormember for qualification requirements.

For assistance with references, Northern Virginia Section members may contact Monica Mallini at m.a.mallini@ieee.org and Washington Section members may contact Raj Madhavan at raj.madhavan@ieee.org.

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