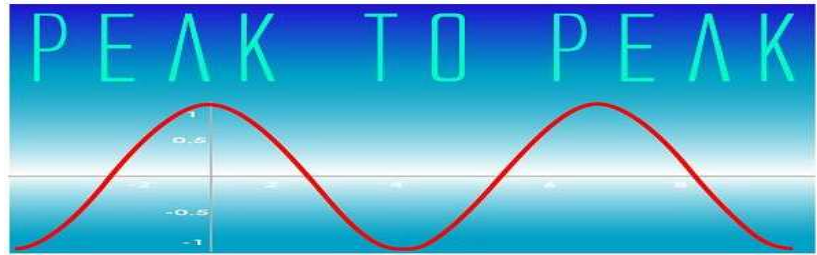




OCTOBER 2006

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# THE IEEE NEW HAMPSHIRE SECTION

## Chairman's Thoughts

*By Tom Perkins*

As we enter the busy fall season, it's a time for new starts and renewals of activities. Somehow, the summer was too short. I didn't quite get all the projects done around the house and between business trips, IEEE meetings and camping with my wife, I was away over thirty nights. I guess that's where it went. I only got the antique 1955 Farmall Cub tractor out a couple times (another hobby besides amateur radio).

We had a great meeting with Professor Tony Ephremides from the Communications Society on September 20<sup>th</sup>. Attendance was good and his review of new problems and trends in wireless adhoc networks was very timely information (pun possibly intended). Anyone want to start up a ComSoc Chapter here in NH? It's one of the fastest growing Societies in IEEE.

Upcoming activities include more technical meetings (see announcements elsewhere), an initiative to get an Annual Joint New Hampshire Society Conference started with NHSPE, ASCE-NH, SENH, ACEC and others, and very importantly our 4<sup>th</sup> Annual Awards Banquet on Wednesday, November 8 (note the change in week and day from tradition). I urge you to sign up for that event. It's free to members and discounted for guests. Our speaker will be Region 1 Director-Elect for 2008 through 2009, Dr. Howard Mi-

chel. Our current Region 1 Director, Col. Barry Shoop cannot be with us as he just got word that he must go to Afghanistan and Iraq in November. He hopes to be back at West Point next year, and as he will still be Director, hopes to be with us in November 2007.

Finally, please make a nomination for the "Young Engineer of the Year" prior to the October 10 deadline. See the details on page 9.

If you have any topics that you think should be discussed at this month's ExCom meeting on October 12, or if you want to discuss any other topic, please feel free to contact me at [tomperkins@ieee.org](mailto:tomperkins@ieee.org), I would enjoy hearing from you.

## From the Editor: GET INVOLVED! - NOW!

*By Jim Anderson*

Wherever we look there are articles deploring the low number of students studying math and science in elementary and high school, the low number of engineering, math, and science majors graduating from college, and the outsourcing of technical jobs to China and India. What are we to do? The sky is falling!

One of the answers to these problems is to do what engineers do

*Continued on Page 3*

# THE NEW HAMPSHIRE SECTION




## FOURTH ANNUAL AWARDS BANQUET 2006

The Yard Steak and Seafood House  
Wednesday, November 8<sup>th</sup>, 2006

Your opportunity to meet new Chapter Officers and nominees for Section Officers

### AGENDA

6:00 pm	Social / Hors d' Oeuvres
6:45 pm	Dinner - Buffet Style (3 choices of entrees)
7:45 pm	Presentation of Awards
8:30 pm	Keynote Speaker Dr. Howard E. Michel <a href="http://www.ece.umassd.edu/Faculty/hmichel/region1Michel.htm">http://www.ece.umassd.edu/Faculty/hmichel/region1Michel.htm</a>
	 <p>IEEE Region 1 Director Elect 2008, 2009 Topic: New Membership Models Being Considered and Statistics on a Comprehensive Survey of What Members Want From IEEE</p>

COST            No Cost to IEEE Members  
                  Guests: \$15 each

RSVP            [NHIEEE@aol.com](mailto:NHIEEE@aol.com)  
                  By November 3<sup>rd</sup>, 2006 (Reservation Form - click [here](#))

ATTIRE         Business

NOTES         If you do not need to mail payment, you may RSVP via email to [NHIEEE@aol.com](mailto:NHIEEE@aol.com), including the following:  
                  ✍ Name  
                  ✍ Member No.  
                  ✍ Email Address  
                  All respondents will receive confirmation via email

## Chapter News

### Microwave Theory and Techniques Society Presents

**Liquid Crystal Polymer for RF and Millimeter Wave Multi-layer Packages and Modules**

**Speaker: Dr. Anh-Vu Pham**

Microwave Microsystems Laboratory Department  
of Electrical and Computer Engineering

University of California, Davis

Date: Monday, October 02, 2006

Time: 6:00 PM

Location: BAE Systems Headquarters Building -  
Main Lobby Auditorium

**Abstract:** We present the design and development of multi-layer organic modules and packages using liquid crystal polymer (LCP). An overview and unique properties of liquid crystal polymer will be first discussed. We will present the development of liquid crystal polymer caps for RF MEMS. A cavity formed in a liquid crystal polymer film has been laminated, at low temperature, onto silicon MEMS switches to create a hermetically sealed package. Multiple organic dielectric films can be integrated on top of the LCP cap to form a multi-layer module. We will also present compact surface mount packages using multi-layer liquid crystal polymer films. The feedthroughs of these packages including bond wires and transitions to a printed circuit board achieve less than 1 dB insertion loss at Ka-band.

**Biography:** Anh-Vu H. Pham received the B.E.E. (with highest honors) and Ph.D. degrees from the Georgia Institute of Technology, Atlanta, in 1995 and 1999, respectively. From 1997 to 1999, he was a technical staff member and a co-founder of RF Solutions, LLC, an RFIC company that was acquired by Anadigics in 2003. He was on the faculty at Clemson University from 1999 to 2002. He joined the University of California at Davis in 2002 and is currently an Associate Professor. He has authored or co-authored ~ 60 technical journal and conference papers. He is conducting research in RF and high-speed packaging and signal integrity, RFIC design, and wireless sensors.

Anh-Vu serves as a member of the IEEE Microwave Theory and Techniques Society (IEEE MTT-S) International Microwave Symposium (IMS) Technical Program Committee (TPC) on Power Amplifiers and Integrated Circuits. He was the chair of the IEEE MTT-12 Microwave and Millimeter Wave Packaging and Manufacturing Technical Coordinating Committee (2003-2006). He was the recipient of the 2001 National Science Foundation CAREER Award on millimeter-wave organic packaging. He is also active as a consultant to the industry.

**Location:** BAE Systems Headquarters Building - Main Lobby Auditorium, 65 Spit Brook Road, Nashua, NH ½ mile east of Everett Turnpike, Exit 1

For more information call Tom Perkins @ (603) 885-5040, or e-mail [thomas.perkins@baesystems.com](mailto:thomas.perkins@baesystems.com)

### Computer Society Presents

**IT in the Real World**

**Speaker: Ed Nelson**

Fortune 500 Insurance Company

Date: Thursday, October 19, 2006

Time: 7:00 PM

Location: Walker Auditorium of Robert Frost  
Hall at SNHU

**Abstract:** What are the challenges that IT still has to conquer in a corporate setting? What can you, as a student, do to prepare yourself to be an effective practitioner of IT? I will discuss what challenges exist in small, medium and large IT organizations. After discussing the challenges, I will recommend some remedies. Both the challenges and the solutions may surprise you!

**Biography:** Ed Nelson currently works for a Fortune 500 insurance company in Portsmouth, NH. He has done IT work for a small start up (the owner being the only full time employee), a slightly bigger company (Cornerstone Software), and a large company. He's written software that is used all over the world, including customers like the Austrian Police, Lloyds of London and the FAA. He started his career in 1987 and thinks he is learned a thing or two since then.

For the 2006 - 2007 academic year, the chapter is scheduling its IT Seminar Series on Thursdays from

7:00 to 9:00 PM in the Walker Auditorium of Robert Frost Hall at SNHU. For the latest information, check [http://acadweb.snhu.edu/Isaak\\_James/ITseminars/index.htm](http://acadweb.snhu.edu/Isaak_James/ITseminars/index.htm)

The chapter will hold its next meeting on Thursday Nov. 9. Gary Couture of VP Fidelity eBusiness will give a presentation on eBusiness.

If you have particular topics you would like to see covered, or speakers to suggest, please send a note to: [ITSeminar@JimIsaak.com](mailto:ITSeminar@JimIsaak.com)

## CNEC Product Safety Engineering Society and Northeast Product Safety Society Present

**Overcurrent Protection**  
**Speaker: Carl Lindquist**  
VP New Product Development, San-O Industrial Corporation, Holbrook, LI, NY.  
Date: Wednesday, October 25, 2006  
Time: 7:30 pm *(preceded by a social and networking opportunity at 7PM)*  
Location: Holiday Inn. Boxborough. MA

WHO SHOULD ATTEND? People interested in overcurrent protector selection and alternate sourcing.

Summary: Overcurrent protection design and selection are often overlooked by design engineers during new product development. Those responsible for designing circuits using overcurrent protectors, as well as those purchasing such protectors, often misinterpret specified parameters and "equivalent" devices when seeking primary and secondary sources. The presentation will provide a brief overview of various types of overcurrent protectors, including fuses, PTC's, circuit breakers, etc. The discussion will concentrate on fuse design, the relative strengths and weaknesses of different types of fuse designs, important protector parameters and documentation recommendations.

About the Speaker: Mr. Lindquist has worked in the circuit protection field for nearly 40 years, starting as a Development Engineer at Western Electric Headquarters Staff Purchasing in New York City. He joined San-O Industrial in 1980. In 1998 he authored a 75 page chapter on "Overcurrent Protective Components" in the *Passive Electronic Component Handbook*, McGraw-Hill. Carl has been a member of the

IEEE- Surge Protective Devices Committee (SPDC) for over 15 years, chairs a subcommittee at the Electronic Component Assemblies & Materials Association (EIA/ECA Passive Components Committee) and chairs a working group established to generate a new safety standard for telecommunications overcurrent lightning surge withstand protectors at the Telecommunications Industries Association (TIA TR41). He is also a Senior Member of the American Society for Quality.

Membership in the IEEE CNEC PSES or NPSS is not required and all are welcome to attend. We meet the 4<sup>th</sup> Wednesday of the month in September, October, January through April, and again in June. Please check out our joint web site at [www.nepss.org](http://www.nepss.org) for additional information about our future meetings and special events in November and May and for directions to the Holiday Inn in Boxborough, MA.

Any questions or comments can be emailed to Steve Brody at [compliance.engineering@thermo.com](mailto:compliance.engineering@thermo.com) or [steve.brody@thermo.com](mailto:steve.brody@thermo.com).

If you have any suggestions for meeting topics or speakers please contact Paul Smith, our meeting scheduler, at [paulsmith1@cs.com](mailto:paulsmith1@cs.com)

## Engineering in Medicine and Biology Society

If you have any suggestions for meeting topics or speakers; or if you would like to become active in the Chapter please contact me at: [wjsmith@cisunix.unh.edu](mailto:wjsmith@cisunix.unh.edu)

## Power Electronics Society

If you have any suggestions for meeting topics or speakers; or if you would like to become active in the Chapter please contact Chuck Button at [chuckbutton@ieee.org](mailto:chuckbutton@ieee.org)

## Power Engineering Society

If you have any suggestions for meeting topics or speakers; or if you would like to become active in the Chapter please contact Paul Krell at [krell@unitil.com](mailto:krell@unitil.com)



# From Soccer to FIRST LEGO League

*By Bob Lee*

I have coached fall soccer teams since 1999, but last year I switched to FIRST LEGO League ( FLL) robotic teams. In November 2004 I heard about the UNH STAR FLL Tournament for middle school students. I had two boys in middle school and thought they might like to see it; so I packed them and their younger sister up and headed to the tournament.

It is hard to describe an FLL tournament to someone who has not been to one. The atmosphere in the auditorium was electric. During the opening procession, teams marched in carrying banners, repeating their team cheers. Each team had their own, distinctive uniform—one team dressed as chickens; another donned LEGO brick hats. Different sections of the auditorium erupted in cheers and applause as each successive team was introduced. It was hardly what I expected at a robotics competition.

We watched a few of the robotic matches, wandered through the pit area, checked out a few of the research projects and bought raffle tickets hoping to win the grand prize, a LEGO Mindstorm Robot Invention System. We did not win the raffle, but we were smitten with the FLL bug that day. I could tell my 10-year-old was hooked from the look in his eyes. I left the tournament with a desire start a team at our middle school.

In the months following the tournament I tested the waters. I visited the FLL website to learn more about starting an FLL team. I dropped hints with my wife to see how she would respond. I spoke with our middle school principal to enlist her support. Before school let out for the year, I sent out a flyer to gauge student interest. I received enough positive responses to give it a try.

The FLL season runs for approximately eight weeks in the fall. Team registration runs from May through September. Teams are composed of up to 10 boys and or girls from ages 9 - 14. The FLL challenge is released in mid-September. Teams have until their regional tournaments in mid-November to prepare their robot and research presentation.

FLL had a positive impact on the five boys and one girl who participated on our team last year. They learned skills such as building, programming, logistics, strategy, debugging, troubleshooting, writing, researching, and mechanical design. They also learned soft skills such teamwork, listening, brain-

storming, interviewing, perseverance, and presenting. It was gratifying to see the kid's excitement when they worked out the last bug from their line following algorithm and watched the robot follow the line around the mat.

We participated in the UNH STAR Tournament dressed in black t-shirts with half of our face and hair painted silver. We placed 7<sup>th</sup> in the first round of robotics competition, qualifying to move on to the second round. The research and technical presentations were learning experiences. It was a fun, chaotic, exhausting day.



Future Robotics posing for a team photo at the UNH STAR Tournament (L-to-R Coach Dodge, Gareth, Rachel, Tim, Josh, Joey, Caleb, Coach Lee)

The team demonstrated the robot, gave their research presentation and talked about their FLL experience at the school's Thanksgiving lunch assembly. Many students, teachers and parents had the misperception that FIRST LEGO League was a LEGO club for boys. The interest generated from the demonstration led me to start a second, all-girls team this year.



Tim and Rachel change batteries in our pit before the next round.

Dean Kamen (started FIRST in 1989 to change the culture by making science, technology and engineering

as cool as sports. It was a stroke of genius to design the robotics competition similar to a sporting event. He truly has found a fun way to stimulate an interest in science and technology.

Caleb lines up the robot to retrieve the crate while Joey and Josh look on.



Many adults are intimidated by robotics and technology. They have the misperception that they do not have the skills necessary to get involved in FLL. We do not have that excuse. We are technical people. I came to the conclusion that my skills were better used in FLL than on the soccer field. I would encourage you to start an FLL team at a school near you.

Bob Lee is a firmware engineer for GE Energy in Somersworth, NH, where he designs firmware for electricity meters. Bob graduated from Dartmouth College in 1982 with a degree in Computer Science. He has been a member of the IEEE Computer Society since 1982.

### How I Became an Engineer By Peter J. Kajenski

I became a licensed ham when I was 11, but I didn't really grasp what engineering was all about until I was a sophomore biochemistry major at UCLA - and the president of the ham radio club there. It was about that time that I became envious of the EE majors in the club, and my senior year I said out loud, "boy, I wished I had studied that stuff." The club VP said, "So why don't you?" - and I spent the next 7 years getting a master's and PhD in EE. I loved every minute of it, and now I'm amazed that people will actually pay me to do "that stuff" for a living.

Peter J. Kajenski  
[kblic@ieee.org](mailto:kblic@ieee.org)

## As an Engineer, What Do I Want the Next President to Know?

*By Jim Isaak*

New Hampshire has a unique position for communicating information to candidates for President of the U.S. with its first-in-the-nation primary and small size. IEEE-USA is encouraging us to hold discussion groups with candidates where we can give them our perspectives, as individuals, on what this country needs. As a not-for-profit, IEEE does not support any candidates, but we can talk to them. The section would hold multiple events inviting candidates from both parties.

Here is my priority item, and I hope others in the state will share theirs, and also consider participating in these groups if we can get them going. The United States is at great risk of losing both its leadership in innovation and its capability for innovation. This has been the foundation of American growth since the 19<sup>th</sup> century. This is an engineering issue because it is primarily engineers, applied scientists and technologists who are the source of innovation.

Our risk comes in a few forms - of greatest concern to me is the lack of students entering the fields of science and technology. Without new graduates corporations will off-shore their research and development activities to countries where there are significant graduates in these fields.

We have had some success drawing the 'best and brightest' to the U.S. with research opportunities and our quality of life. However, our research funding is dropping - U.S. corporations have abandoned their non-product research (Bell Labs, IBM Research, etc.); Federal research dollars have been essentially flat for 15 years, and in many cases have been focused on short term hotspots not strategic vision. University research is increasingly tied to corporate partnerships which may limit the breadth of areas and objectives considered.

Three out of five of the Computer Society Technical Achievement Awards for 2005 went to individuals with degrees from India Institute of Technology schools, all of whom were working in the U.S. Increasingly these excellent individuals can find challenging opportunities without coming to the U.S., staying with family and building the strength of their own economies. I do not begrudge the economic growth of India, China or other areas of the world - the stronger their economies and living conditions the more secure our world will be.

## From the Editor (Cont'd)

*Continued from Page 1*

Innovation comes from the likes of Edison and Tesla; with individuals like New Hampshire's own Dean Kamen as a contemporary example. We need to create an environment that nourishes and encourages the dozens of Dean Kamens, and hundreds of collaborators they will need to build successful products and businesses. History has shown that many innovative products have come out of small companies (who do not have legacies to protect or the inertia of the old-man-of-the-mountain), often startup operations.

We must find ways to encourage young people to pursue science and technology, and have funded research that will encourage broad innovation in universities and industry. We also must create an environment where entrepreneurs can translate their dreams into start-up companies. My interactions with individuals pursuing this path indicates that the costs of health care and insurance are a major deterrent; particularly for those with families. Some have moved outside of their engineering competencies for jobs that provide these benefits.

The immediate call for action is to identify and address the factors that are discouraging new students, to restore a strong federal research program, and to address the factors that result in engineers leaving the field rather than leading the way to innovation. Industry and professional organizations are investing in these areas - Dean Kamen's FIRST Robotics competition, IEEE's TryEngineering.org web site and training for pre-college teachers are examples of this.

I want the next president to take a pro-active lead in building an understanding of the excitement of science and technology, the value these bring to humanity, and the challenges we face among both pre-college teachers and pre-college students. These are essential investments in America's future and they will bring real value to all Americans.

best, GET INVOLVED and fix the problem. In my opinion, one of the root problems is that math and science are portrayed as HARD subjects rather than as FUN subjects.

How do we fix that? Here it comes again, GET INVOLVED! Most elementary and many secondary school teachers do not have degrees or enough background in math and science which makes it hard for them to transmit the fun and excitement with these subjects. We have degrees in math and science. We know the fun and excitement of solving challenging problems. So let's GET INVOLVED in our local primary and secondary schools and transmit our enthusiasm for math and science to the students and their teachers.

You say, "How can I do that?" There are many ways. You can judge Young Inventors and Science and Engineering Fair events, talk to the participants and encourage them, give them ideas how to take their project to the next level. [Stay tuned, we will let you know about opportunities to judge the next Young Inventors program]. If you know of opportunities to judge Science and Engineering Fairs, let me know and I will try to recruit some volunteers.

There are many opportunities to coach or mentor First Lego League teams, Future Cities teams, and First Robotics teams. Bob Lee, one of our members, has an excellent article in this issue on his experiences with the First Lego League teams. At the September Executive Committee meeting a motion was approved to provide some financial support for one of the two teams that Bob is coaching this year.

Jim Isaak, a member of the ExCom, has a great article focusing mainly on the problems at the college and university level and how they affect our country. He is encouraging us to GET INVOLVED by bringing our concerns to the attention of the next candidates for the Presidency of the USA.

In previous issues of the Peak to Peak we have had articles on IEEE's Teacher In Service Program (TISP) which is looking for volunteers. If you want to GET INVOLVED with TISP, contact Don Sherwood at [donsherwood@ieee.org](mailto:donsherwood@ieee.org).

If you prefer to have one-on-one interactions with the students in your local school we have mentioned that Larry Nelson, the Region 1 Pre-University Education coordinator, [L.Nelson@ieee.org](mailto:L.Nelson@ieee.org), can give you some ideas on what works best and how to do it.

On Tuesday, November 14, there is a Seminar for Engineers and Educators at the Boston Museum of Science. Contact Valerie MacEachern at [vmaceachern@mos.org](mailto:vmaceachern@mos.org) for more information and to register.

The bottom line is, GET INVOLVED! - NOW!

# GIRL TALK

## 2006 IEEE MPAC-WIE Conference (Region 2)

2006 MPAC-WIE Conference, October 14 - 15  
"Meeting the Challenges of the 21st Century Engineer"

*Everyone is welcome: member, non-member, male or female.*

Embassy Suites Baltimore-at BWI Airport  
1300 Concourse Drive, Linthicum, Maryland 21090

### Sponsors:

- ⌘ IEEE Region 2, Baltimore, Washington D.C., Northern Virginia, Southern New Jersey Sections and its Women in Engineering (WIE) Affinity Groups
- ⌘ Member Professional Awareness Conference (MPAC) Baltimore Section



### Topics include

- ⌘ Conquering the Challenges of Graduate School - TADA! - Thesis and Dissertation Accomplished-Practical Steps to Completing Your Master's Thesis or Dissertation (Dr. Wendy Carter, ABD Solutions Co.LLC)
- ⌘ IEEE WIE for the 21st Century - Are You Ready to Start an IEEE WIE Affinity Group? (Carole Carey, IEEE PACE Baltimore Chair; IEEE Region 2 WIE Coordinator; 2006 Conference Chair)
- ⌘ Leading Diversity (Kevin Wilson, NGC BWI EEO/Diversity Manager)
- ⌘ Gender Influences in Engineering (Mary Ellen Randall, Ascot Technologies; 2006 IEEE WIE Committee Chair)
- ⌘ My Career - What I Did Wrong (Mark Apter, Past VP IEEE Regional Activities; Past Director, IEEE Region 2)

For more details, go to  
<http://www.ewh.ieee.org/reg/2/wie/MPAC-WIEOct2006Committee.htm>



**IEEE**

**IEEE Women  
in Engineering**  
[www.ieee.org/women](http://www.ieee.org/women)

## SWE and WIE Joint Activities

*By Jennifer Ng*

On Monday September 18<sup>th</sup>, I was invited to attend the SWE-Southern NH SWE-Boston Satellite group Planning meeting. This "Satellite" group is in the midst of Section formation at this time but currently report to the SWE Boston Section.

The Society of Women Engineers (SWE), founded in 1950, is a not-for-profit educational and service organization. SWE is the driving force that establishes engineering as a highly desirable career aspiration for women. SWE empowers women to succeed and advance in those aspirations and be recognized for their life-changing contributions and achievements as engineers and leaders. For more information about the Society go to <http://www.swe.org>

For details on the SWE Boston Section, go to <http://sweboston.org/> or for the SWE NH Satellite group, <http://tech.groups.yahoo.com/group/SWENH/>

IEEE Women in Engineering ( WIE) is dedicated to important issues for Women Engineers. Affinity groups provide the opportunity for members to network at a local level. All members are encouraged to join and participate in their local group activities to promote growth within the WIE.

SWE and WIE have very similar objectives and goals. For instance, here are some of the activities that both support:

- ⌘ Meetings featuring a variety of technical and/or professional development speakers at area corporations to enhance the career advancement of women in the profession.
- ⌘ Networking events and receptions
- ⌘ Regional and National Professional Development Conferences.

- ⌘ Workshops to teach young women about engineering as Facilitate the development of programs and activities that promote the entry into and retention of women in engineering programs.
- ⌘ Mentoring about careers in engineering.

The women engineers at the SWE-Southern NH SWE-Boston Satellite Planning meeting are an enthusiastic bunch of people with many ideas and projects on-the-go (Girl Guides Technology badges for E-week, seminars, etc.). Many of them work in fields not covered by the IEEE (e.g. Mechanical Engineering, Compliance Engineering, Validation Engineering - Mechanical, Systems Engineering, etc.).

By joining efforts and resources, we will more likely achieve a greater success to our common objectives. I am looking forward to hear more from these SWE members as well as participating to their upcoming events.

If you are an IEEE member and interested in forming a WIE Affinity Group in the NH Section with me, please contact me, Jennifer Ng, at [jng@ieee.org](mailto:jng@ieee.org).

## 2006 Outstanding Young Engineer Award

Nomination Deadline: October 10, 2006

The IEEE NH Section Outstanding Young Engineer Award was established to recognize engineers 35 years of age or under "For outstanding contributions in the leadership of technical society activities, leadership in community and humanitarian activities, and evidence of technical competence through significant engineering achievements."

The award, administered by the NH Section Awards Committee, is presented annually at the IEEE NH Section Annual Meeting. Recipients receive a plaque, and have the privilege of designating a college or university to receive a \$500.00 scholarship for an electrical/electronics engineering undergraduate.

To be eligible for the award, an individual must be 35 years of age or under on January 1 of the presentation year (January 1, 2006 for this year's award), be a Member Grade or higher of the IEEE, and have been a member of the New Hampshire Section for at least one year.

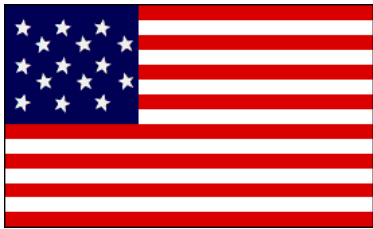
Nominations can be made by any NH Section member with the endorsement of the chapter in which the individual is a member.

Factors to be considered for selection include: local IEEE activities and leadership, professional society activities, evidence of technical competence and achievement, community and humanitarian activities, educational achievements, and professional registration.

Nominations may be emailed to [NHIEEE@aol.com](mailto:NHIEEE@aol.com)

# Do You Remember 9/13? That is September 13, 1814!

By Jim Anderson



Fort McHenry Flag

Shortly after I finished the 9/11 article last month, a friend sent me a longer form of the article below. I thought that it was quite a coincidence that we had also been attacked 187 years ago, almost to the day.

Near the end of his life, the great science fiction author Isaac Asimov wrote a short story about the four stanzas of our national anthem; No Refuge Could Save.

In 1812, the United States went to war with Great Britain, primarily over freedom of the seas. For two years, we held off the British, even though we were still a rather weak country. Great Britain was in a life and death struggle with Napoleon. In fact, just as the United States declared war, Napoleon marched off to invade Russia. If he won, as everyone expected, he would control Europe, and Great Britain would be isolated. It was no time for her to be involved in an American war.

At first, our seamen proved better than the British. However, the weight of the British navy beat down our ships eventually. New England, hard-hit by a tightening blockade, threatened secession.

Meanwhile, Napoleon was beaten in Russia and in 1814 was forced to abdicate. Great Britain now turned its attention to the United States, launching a three-pronged attack.

The northern prong was to come down Lake Champlain toward New York and seize parts of New England. The southern prong was to go up the Mississippi, take New Orleans and paralyze the west. The central prong was to head for the Mid-Atlantic States and then attack Baltimore, the greatest port south of New York. If Baltimore was taken, the nation, which still hugged the Atlantic coast, could be split in two. The fate of the United States, then, rested to a large extent on the success or failure of the central prong.

The British reached the American coast, and on August 24, 1814, took Washington, D.C. Then they moved up the Chesapeake Bay toward Baltimore. On September 12, they arrived and found 1,000 men in Fort McHenry, whose guns controlled the harbor. If the British wished to take Baltimore, they would have to take the fort.

On one of the British ships was an aged physician, William Beanes, who had been arrested in Maryland and brought along as a prisoner. Francis Scott Key, a lawyer and friend of the physician, had come to the ship to negotiate his release. The British captain was willing, but the two Americans would have to wait. It was now the night of September 13, and the bombardment of Fort McHenry was about to start.

As twilight deepened, Key and Beanes saw the American flag flying over Fort McHenry. Through the night, they heard bombs bursting and saw the red glare of rockets. They knew the fort was resisting and the American flag was still flying. But toward morning the bombardment ceased, and a dread silence fell. Either Fort McHenry had surrendered and the British flag flew above it, or the bombardment had failed and the American flag still flew.

As dawn began to brighten the eastern sky, Key and Beanes stared out at the fort, trying to see which flag flew over it. He and the physician must have asked each other over and over, "Can you see the flag?"

After it was all finished, Key wrote a four stanza poem telling the events of the night. Called "The Defense of Fort McHenry," it was published in newspapers and swept the nation. Someone noted that the words fit an old English tune called, "To Anacreon in Heaven" -- a difficult melody with an uncomfortably large vocal range. For obvious reasons, Key's work became known as "The Star Spangled Banner," and in 1931 Congress declared it the official anthem of the United States.

Now that you know the story, here are the words. Presumably, the old doctor is speaking. This is what he asks Key:

*Oh! say, can you see, by the dawn's early light,  
What so proudly we hail'd at the twilight's last  
gleaming?  
Whose broad stripes and bright stars, through the  
perilous fight,  
O'er the ramparts we watch'd were so gallantly  
streaming?  
And the rocket's red glare, the bombs bursting in air,  
Gave proof thro' the night that our flag was still  
there.*

*Oh! say, does that star-spangled banner yet wave,  
O'er the land of the free and the home of the brave?*

("Ramparts," in case you don't know, are the protective walls or other elevations that surround a fort. The first stanza asks a question. The second gives an answer:)

*On the shore, dimly seen thro' the mist of the deep  
Where the foe's haughty host in dread silence reposes,  
What is that which the breeze, o'er the towering steep,  
As it fitfully blows, half conceals, half discloses?  
Now it catches the gleam of the morning's first beam,  
In full glory reflected, now shines on the stream  
'Tis the star-spangled banner. Oh! long may it wave  
O'er the land of the free and the home of the brave!*

("The towering steep" is again, the ramparts. The bombardment has failed, and the British can do nothing more but sail away, their mission a failure. In the third stanza Key allows himself to gloat over the American triumph.)

*And where is that band who so vauntingly swore  
That the havoc of war and the battle's confusion  
A home and a country should leave us no more?  
Their blood has washed out their foul footsteps' pollution.  
No refuge could save the hireling and slave  
From the terror of flight, or the gloom of the grave,  
And the star-spangled banner in triumph doth wave  
O'er the land of the free and the home of the brave.*

(The fourth stanza, a pious hope for the future, should be sung more slowly than the other three and with even deeper feeling):

*Oh! thus be it ever, when freemen shall stand  
Between their loved homes and the war's desolation,  
Blest with victory and peace, may the Heaven - rescued land  
Praise the Power that hath made and preserved us a nation.  
Then conquer we must, for our cause is just,  
And this be our motto -- "In God is our trust."  
And the star-spangled banner in triumph doth wave  
O'er the land of the free and the home of the brave.*

I hope you will look at the national anthem with new eyes. Listen to it, the next time you have a chance, with new ears. Pay attention to the words. And don't let them ever take it away ... not even one word of it.

## Remember When

*By Duncan Morrill*

Reading the August 2006 Newsletter blurb on the IEEE Computer Society's new Certified Software Development Professional credential, I looked up and around over there in the corner at some sort of framed official-looking certificate yellow with age that says "Data Processing Management Association bestows etc. etc. the Certificate in Data Processing etc. etc. September 4, 1962 etc. etc."

Now it's coming back partially, in flashes and pieces. It was still the IRE back then and IRE was one of the sponsors of that early certification program. The next year or so there was a junior-level certificate for Certified Computer Programmer. In addition to educational and experience requirements, one had to take an exam. Not exactly the Bar or CPA exam, though I do seem to remember that there were noticeably fewer taking the afternoon portion of the exam than took the two morning segments. Earlier that year I had sent in an application with resume and even copies of my degrees, and I had had to arrange for a couple of letters of reference, and I recall springing for some substantial exam fee. Then in the spring I commuted down from Poughkeepsie, NY where I worked for IBM to lower Manhattan.

This first exam was held in two large classrooms at NYU over near Washington Square. I don't recall the number of examinees but I think it was 100 or more, initially. Don't know how many passed the first time but I do know a substantial number took it a second time. The examinees were from all over the country. Subsequently the exams were held regionally. The material covered was basic and thorough, including, I seem to recall, pretty technical questions covering topics from punched paper tape to sorting routines, binary and octal arithmetic to FORTRAN, self-calling subroutines to modular design, Boolean algebra to logic design, and specs and documentation to top-down architecture. Those were the good ole days.

Duncan Morrill  
[dmorrill@ieee.org](mailto:dmorrill@ieee.org)  
 Certified Data Processor

# Other Meetings of Interest

Please let me know if you are aware of other meetings that might be of interest to our members. We each belong to different societies, read different publications, work in different industries, and surf different web sites. So if you see any interesting meetings or conferences please send me the notice or the URL. To keep the list manageable I have limited it to the next six months.

Jim Anderson [james-w-anderson@ieee.org](mailto:james-w-anderson@ieee.org)

October 4 - 6, 2006  
Technology Commercialization Alliance  
Washington, D.C.  
<http://www.knowledgefoundation.com>

October 14 - 15, 2006  
IEEE 2006 MPAC-Women In Engineering Conference  
Embassy Suites Hotel at BWI Airport  
"Meeting the Challenges of the 21st Century Engineer"  
<http://www.ewh.ieee.org/reg/2/wie.htm>

October 15 - 18, 2006  
IEEE / NEMA CONFERENCE ON ELECTRICAL INSULATION AND DIELECTRIC PHENOMENA  
Kansas City, Missouri USA  
[http://www.ewh.ieee.org/soc/dei/ceidp/ceidp\\_2006.html](http://www.ewh.ieee.org/soc/dei/ceidp/ceidp_2006.html)

October 15 - 19, 2006  
IEEE 11th International Conference on Transmission and Distribution Construction, Operations and Live-Line Maintenance (ESMO)  
Albuquerque Convention Center, New Mexico  
<http://www.esmoconference.com/>

October 17 - 19, 2006  
The Huntsville Simulation Conference  
Huntsville Marriott Hotel, Five Tranquility Base, Huntsville, AL  
Classified segment October 17 at the Advanced Research Center.  
<http://www.scs.org/hsc> .

October 22 - 24, 2006  
COMSOL Users Conference, Boston  
[http://www.comsol.com/activity/us\\_bosdb\\_jun06/1.php](http://www.comsol.com/activity/us_bosdb_jun06/1.php).  
For a free CD with 2005 multiphysics papers, presentation slides and ready-to-run models go to:  
<http://www.comsol.com/conference2005/cd/>

October 22 - 26, 2006  
International Conference on Power Technology (POWERCON)  
Chongqing Golden Resource Hotel, Chongqing, China  
<http://www.conference-power.com/2006/>

October 29 - November 1, 2006  
Power Systems Conference & Exposition PSCE 2006  
Marriott Marquis, Atlanta, GA  
New Solutions for New Challenges In Power Systems Operation, Planning, Policy, Markets, Analysis, and Control  
<https://www.securecms.com/PSCE2006/Registration.asp>

November 6, 2006  
IEEE Upstate NY Workshop on Communications and Networks '06  
Golisano Auditorium, RIT, Rochester, NY  
<http://www.ecs.syr.edu/research/snw/>

November 8 - 10, 2006  
8th International Symposium on System and Information Security  
Sao Jose dos Campos, Sao Paulo, Brazil  
<http://www.ssi.org.br/english/>

November 14, 2006  
Seminar for Engineers and Educators  
Boston Museum of Science  
Contact Valerie MacEachern at [vmaceachern@mos.org](mailto:vmaceachern@mos.org) for more info. & to register

December 4 - 6, 2006  
LITHIUM MOBILE POWER 2006  
Miami Beach Resort & Spa  
<http://www.knowledgefoundation.com/>

December 4 - 14, 2006  
2nd International Joint Conferences on Computer, Information, and Systems Sciences, and Engineering (CISSE 2006)  
This international conference will be held entirely online. Submission Deadline Oct 13th  
<http://www.cisse2006online.org>

December 6 - 8, 2006  
2nd Annual Fuel Cells Durability & Performance Conference  
Miami Beach, FL  
<http://www.knowledgefoundation.com/>

December 18 - 20, 2006  
IEEE Conference on Electric and Hybrid Vehicles (2006ICEHV)  
Hotel Le Meridien, R.B.M. Road, Pune-411 001, India  
e-mail: [ypnerkar@yahoo.com](mailto:ypnerkar@yahoo.com)



March 7 - 9, 2007  
9th Annual International Conference - SMALL FUEL  
CELLS for Portable Applications  
<http://www.knowledgefoundation.com/>

March 13 - 16, 2007  
Power Systems Conference  
Advanced Metering, Protection, Control, Communica-  
tion, and Distributed Resources  
Madren Center, Clemson, University, South Carolina  
<http://www.ces.clemson.edu/powsys2007/>

### Wanted - Fellow and Senior Members

If you are an IEEE Fellow or a Senior Grade Member, and you are willing to act as a reference for members aspiring to be upgraded to Senior Member status, please contact Chuck Button at [chuckbutton@ieee.org](mailto:chuckbutton@ieee.org)

### Wanted - Articles on "How I became an engineer."

Was it because you were always interested in taking things apart and putting them back together (with "extra pieces")? Was it by chance? Was it because you come from generations of engineers and this was your destiny? What was it? Please send me, Jennifer Ng, ([jng@ieee.org](mailto:jng@ieee.org)) your story on how you became interested in Engineering and chose this profession. Every month, we will try to feature an article in the newsletter.

## Questions & Answers

**Q: Who are the NH Executive Committee members?**  
A: The list of all the members and their contact information is found on the section website at [http://www.ewh.ieee.org/r1/new\\_hampshire/Officers.html](http://www.ewh.ieee.org/r1/new_hampshire/Officers.html)

**Q: Who do I contact about suggestions for the newsletter?**  
A: The Editor, Jim Anderson can be reached at [james-w-anderson@ieee.org](mailto:james-w-anderson@ieee.org) or Jennifer Ng, the co-editor, can be reached at [jng@ieee.org](mailto:jng@ieee.org)

**Q: How can I be removed from the mailing list or update my email address for section news?**  
A: Send email to the NH Section Administrator, Donna Davis, at [NHIEEE@aol.com](mailto:NHIEEE@aol.com)

**Q: How do I get elevated to IEEE Senior Member Grade?**  
A: Please visit the IEEE Senior Member website at <http://www.ieee.org/organizations/rab/md/smprogram.html>

The NH IEEE Section can support your application and you will need two additional Senior or Fellow grade members as references. Please contact Chuck Button (NH Section Secretary) at [chuckbutton@ieee.org](mailto:chuckbutton@ieee.org) for more details.

**Q: How do I start a new society chapter?**  
A: Please refer to this site for details on eligibility and requirements: <http://www.ieee.org/portals/pages/tab/cha/newchap.html>

**Q: Why can't I read the newsletter on my web browser?**  
A: Try downloading the latest free version of Adobe Reader at [http://www.adobe.com/go/gntray\\_dl\\_get\\_reader](http://www.adobe.com/go/gntray_dl_get_reader)

**Q: Why doesn't the URL [http://www.ieee.org/nh\\_section work?](http://www.ieee.org/nh_section_work?)**  
A: At the present time the URL is case sensitive and you must use [http://www.ieee.org/NH\\_Section](http://www.ieee.org/NH_Section). We hope to have this corrected by IEEE shortly.

**Q: Why did the fonts change in the newsletter?**  
A: One of our Life Members, Jim Macartney, informed us of a problem. It seems that the font we picked previously, Kartika, was very uncommon and Adobe did some real strange things when it tried to pick an alternate font. We think that we have solved the problem by using a new font, Trebuchet MS, which is one of Microsoft's core webpage fonts. We hope that doesn't cause Mac users any problems.