



WESTERN NORTH CAROLINA SECTION

Forty Year Anniversary in 2005

Newsletter for December, 2005

This is the final Newsletter for 2005. I hope everyone successfully transitioned the holiday season with no bill collectors at your door.

The year 2005 has really been very successful for the IEEE WNC Section. I particularly want to thank all the folks that submitted articles for the Newsletter. The articles were great and it made my job as editor so much easier. Next year our new Secretary, A. J. Burke, will take over as Newsletter Editor. I'm sure he will do a great job.

Don't forget, you can keep up with all the activities by checking your **WNC Section website**: <http://www.ewh.ieee.org/r3/wnc>

Here's a list of the items presented this quarter. Read more about each item in the report below:

- **WNC Section 2005 Activities in Review:** We had a great year. Read all about it.
- **Interesting things on the IEEE Website:** Make sure you are aware of and are using the great IEEE benefits and services
- **Student/Educational Activities:** We are helping students and teachers get a new perspective on Engineering – Check it out!
- **Regular Membership Meetings:** Come, join the fun! A number of suggestions are being considered for this coming year. Something you'd like to see/do, contact one of the officers.
- **Professional Activities:** Want to get involved? With our new Professional Activities Coordinator for next year, we are expecting some great things in this area.
- **Awards:** Have you applied for Senior Membership? Last year we had 20 members apply for Senior Member status.

WNC Section 2005 Activities and Events in Review - [Article by Fred Orland](#)

Our section had a very exciting, active and successful year.

PLANT TOURS

We want to recognize and thank the following companies and individuals who generously provided resources and time to provide tours for our section. You did an excellent job.

They are:

- Blue Ridge Motion Pictures Studios – Mr. Leanne Campbell
- Pisgah Astronomical Research Institute – Mr. Charles Osborne
- Buncombe County 9-1-1 Emergency Communications Center – Mr. Jerry VeHaun
- BorgWarner Turbo Systems – Mr. Steve Roby

UNIVERSITY STUDENT PROGRAMS

The “Engineering Career Round Table” and the “Senior Student Project Design Reviews” programs are very beneficial and constructive events. These programs are evolving and have significantly improved this year. We are excited to see these two programs becoming so effective.

Much of this is due to the support of the Staff at UNCA (Dr. Joe Fahmy) and WCU (Dr. Ken Burbank, Dr. Bob Adams, Dr. James Zhang and Dr. Brian Howell) and their interest and commitment to integrate the IEEE WNC membership’s depth of engineering experience into the student curriculum. Our section Vice-Chair, James Corr has done an excellent job of coordinating, organizing and guiding these student’s events.

Special thanks to the IEEE members who supported these events. Your participation made these events very successful. Sharing your engineering experience and your time with these engineering students is personally very rewarding. It is also critical to the success of these programs and has a major impact on the careers of the students. These are mutually very rewarding events.

These programs will be repeated again this year and will be scheduled at UNCA in the next few weeks. We had great support from our membership for the last “Design Review” at WCU in December. These programs are dependent on your participation. They are depending on you to participate this year. Check the WNC website for schedule details. www.ewh.ieee.org/r3/wnc/

PRE-COLLEGE STUDENT EDUCATIONAL PROGRAMS

The “Summer Robotics Workshop for Pre-College Students” was held in June 2005. Joe Fahmy, director of Engineering at UNC-Asheville, and assisted by IEEE engineering students (current students in the Mechatronics engineering major at UNC-Asheville) introduced pre-college students to the field of engineering by conducting a Summer Robotics Workshop.

This workshop is a three day event which focuses on the construction and programming of small educational robotic kits called 'BOE-Bots' (for Board Of Education Robot). These autonomous robotic kits can be built and programmed to perform many complex functions through the utilization of a microprocessor and a number of sensors and actuators. Throughout the workshop, participants learned how to control the servo-motor driven platform through the implementation of infrared signaling and detection, photocells, and tactile sensors. The concept of

algorithms, code and programming are incorporated in the competition. On the last day of the workshop, parents and guests were invited to attend the SOMO-BOT sanctioned competition whereby the student participants matched their completed BOE-Bots against one another.

IEEE WNC, with the help of Region 3, funded the purchase of the robot kits.

Another Summer Robotic Workshop is planned for this coming summer. Contact Dr. Joe Fahmy at UNC-A for more information.

“Teacher in Service Training Program” (TISP)

The TISP workshop was attended by WNC member A. J. Burke.

The purpose is to increase the partnerships between IEEE Sections and their local High schools and Middle school systems through the implementation of the Teacher In-Service Program (TISP). Goals of the workshop included:

- Empower Section “champions” to develop collaborations with their local pre-university community to promote applied inquiry-based learning.
- Enhance the level of technological literacy of pre-university educators.
- Encourage pre-university students to pursue technical careers, including engineering.
- Increase the general level of technological literacy of pre-university students for many years.

IEEE has organized and developed over 100 relatively basic science experiments to be used in the class room. We need to make contacts with science teachers in the local schools to encourage and instruct them to implement these in their science classes.

If you are interested in working with the IEEE WNC Section Ad Hoc Pre-college Education Committee to get this program launched, please contact ajburke@ieee.org or spawls@emory.edu. We especially need engineers with good contacts with local school science teachers and curriculum administrators.

PROFESSIONAL ACTIVITIES

“WNC Local Consultants Network (LCN)”

Chuck Stonecypher has launched and has been leading this program. This is an exciting program and is an excellent way to utilize the great technical depth of experience living here in the WNC area and the technology businesses in WNC who are in need of short term technical support. This LCN has a lot of potential in our area and it would be very beneficial for those of you interested in consulting to get involved.

The LCN is a free referral service to help Western North Carolina technology businesses connect with our technical specialists. Resumes indicating areas of expertise are listed on the website. Any of our IEEE members or area technology businesses that are interested in working on either a Contract or Consulting basis can obtain more information at our website

www.ewh.ieee.org/r3/wnc/ or email us at wncconsultantsnetwork@ieee.org .
The next scheduled LCN meeting is January 14 at 6pm.

“Engineers Week”

WNC section annually holds a joint meeting with PENC, ASCE and several other professional societies in February in honor of Engineers Week. The last meeting was a very interesting presentation on **“New Curved Cable stayed Walkway Bridge in Greenville, SC”** design and construction, presented by Chris Britton of Taylor Murphy construction.

“IEEE Conferences”

The section had a delegate attend (funded by Region 3):

- IEEE Region 3 Executive Committee meetings at Southeast Conference in Fort Lauderdale in April.
- IEEE Sections Congress Executive Committee meetings in Tampa in October.
- TISP workshop in Atlanta in July.

WNC SECTION AWARDS BANQUET

The Awards banquet was held at the Country Club of Asheville November 15, 2005. Awards and Recognition of service to the section is very important and was long over due. The banquet was well attended and was a very enjoyable evening. This was an opportunity to thank the section Officers and Committee Chairs for their dedication and all their efforts that make this section active and a strong engineering community of the members. See a separate article in this Newsletter covering the details of the banquet

NEW SECTION OFFICERS

New officers were elected for the 2006 term. They are:

Chair – Jim Erickson

Vice-Chair – Jim Corr

Secretary - A. J. Burke

Treasurer – Fred Orland

Other positions:

Newsletter Editor – A. J. Burke

Student Activities Chair – Jim Corr

Webmaster – Jim Erickson

Professional Activities Committee Chair – Fred Orland

We definitely need more volunteers who are interested in taking a leadership role in our section. If you are interested please contact any officer.

As the past Section Chair, I (Fred Orland) personally would also like to thank all of you for entrusting me as your section Chair these last 2 years (2004 & 2005). It has been a very interesting and rewarding journey that I will fondly remember. Everything that has been accomplished has been due to the great efforts of so many terrific people.

I have enjoyed working with each and every one of you.

What a great experience to get to know so many interesting people. I enjoy your friendship.

Interesting things on the IEEE Website. [Article by Fred Orland](#)

What's New @ IEEE

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Student/Educational Activities

This is the area in which our Section works with aspiring engineers in an effort to give back to the profession some of the benefits that we have received from it. This is a very enjoyable and rewarding endeavor and we would like to see more of our members become involved, particularly those that are retired. Your experiences are very valuable and it is a joy to share them with the young to encourage them and bring them into the

field. If you think you might be interested in sharing your experience with these young students, please contact Jim Corr at: jimcorr@ieee.org

- **Western Carolina University (WCU)** This year we've been very fortunate to have Dr. Bob Adams as IEEE Student Branch, adviser.
 - **Senior Project Preliminary Design Review:** There are over 20 Seniors that are working on their Senior Design Projects. These Projects take two semesters to complete and the IEEE traditionally performs a Preliminary Design Review (PDR) on each of the Projects. The PDR for the 2005/2006 school year took place on December 7, 2005. The IEEE WNC section was represented by over 20 members. We had dinner in the cafeteria with the students and teachers and then met in 4 separate classrooms to have the students present their preliminary designs. Questions and comments (and some war stories) by the IEEE members were encouraged. Comments by the IEEE members indicated that they had a very good time and thought that it was a very productive event for the students. Questions from the students showed they were gaining a new appreciation for the profession they were undertaking. The next phase of this activity will occur in April when the Seniors present their finished projects. Plan to attend if you can. It's a fun event. You will be hearing more details as the time approaches.
 - **Career Roundtable:** This is an event in which several IEEE members talk about their own careers and then open the floor to questions by the students. Traditionally, this event is open to all IEEE members and any and all can contribute. This event took place on November 2nd. It was largely and enthusiastically attended by nearly 50 students. Freshmen had the assignment of writing a paper on the event and had some surprising comments, according to Dr. Burbank. Several indicated they were surprised by the many different and interesting fields and activities that Engineering involved. They seemed to be kind of "blown away" by the thing. In addition, Bob Pettigrew gave a talk on Engineering Professionalism and Ethics that was well received by the students. We want to thank all the members that participated in this event. It seems to have been well received and will probably be scheduled again for next year.

- **University of North Carolina – Asheville (UNCA)**
 - **Senior Project Preliminary Design Review:** This year UNCA Mechatronics Dept. will have 8 students doing their Senior Project. This is a one semester course at UNCA and is a highly team oriented endeavor. Four separate presentations are planned, in which the IEEE is invited to participate. These include: 1) Project Proposal, 2) Preliminary Design, 3) Detail Design, 4) Final Design. All IEEE members are invited to participate. More information on these

activities will follow shortly. If you think you have the time and would enjoy this event, please contact: jimcorr@ieee.org

- **Career Roundtable:** Similar to that event at WCU, described above. The date for this event will probably be in early 2006. More information to follow.

- **IEEE WNC continues to make progress with Pre-College Education Program** - [Article by A. J. Burke](#)

After the success of the IEEE USA's Teacher In Service Training Program (TISP) in Atlanta this last summer, WNC Section has followed up by making contact with educators in Buncombe, Haywood and Henderson counties. This has resulted in following opportunities for the members in IEEE WNC to work with educators and students to build lasting relationships which can in the future be used to influence these students to choose engineering as a career.

This year we have identified an opportunity for IEEE WNC to help the high school students in Henderson County to choose a future engineering career by supporting their entry in the FIRST Robotics competition (<http://www.usfirst.org/robotics/>).



FIRST Finals in the Georgia Dome in Atlanta (2004)

We will accomplish this by providing a \$500 grant for robotics hardware and software for the team. If any of our IEEE WNC members, especially those in Hendersonville and the surrounding area, are interesting in advising the student team they are looking for engineering assistance. Just contact one of our Pre-

College Education Committee coordinators at the end of this article to let them know of your interest in the Henderson County FIRST Robotics opportunity.

For those in the Asheville/Buncombe County area there are also opportunities to help students via a new on-line mentoring program planned for the Math Forum (<http://mathforum.org>) or through the existing Mathcounts (<http://www.mathcounts.org/>) and the American Mathematics Competitions (<http://www.unl.edu/amc/>). These programs are in place and ongoing, but our students have much room for improvement and Buncombe County could especially use some assistance in administering the Buncombe County Mathcounts on January 18 and 19, 2006.

In both of these cases, we are continuing to offer our regional school systems the Teacher In-Service Program (TISP) as launched by the IEEE USA Education Committee (see 3rd Quarter IEEE WNC Newsletter article). There are currently about 15 Lesson Plans and supporting material found on the IEEE Precollege Education site (<http://www.ieee.org/education/precollege>).

If you are interested in working on any of these opportunities contact the IEEE WNC Section Pre-college Education Committee that is working on this program with IEEE USA Education Activities, Region 3 and the IEEE WNC Section at ajburke@ieee.org or spawls@emory.edu.

Regular Membership Meetings

- **January 24 at 7:00 P.M. - Subject: Medical Imaging, Presented by Dr. Perry Sprawls, Professor Emeritus, Emory School of Medicine and IEEE WNC Senior Member.**

Location – University of North Carolina – Asheville Campus – Rhodes Hall Auditorium (RH125). Dinner at the cafeteria at 6:00 P.M.

In most communities some of the most extensive electronic equipment and systems are found in the hospitals and clinics. This is for the highly sophisticated imaging methods that are used by the medical profession to diagnosis diseases, evaluate injuries, and to guide a variety of treatment procedures. In addition to x-rays, other forms of radiation and energy are used for modern medical imaging. These include radiation from radioactive substances such as in Positron Emission Tomography (PET), ultrasound, and RF signals produced in the body with very strong magnetic fields in the process of Magnetic Resonance Imaging (MRI). Now, most of the imaging methods use some form of digital technology to produce the images, enhance their quality, and transmit them to other locations for quick analysis by physicians.

The value of having the multiple imaging methods available in a hospital is that each has the ability to image specific physical characteristics in the body that are the signs of the many different diseases.

In this program, Dr. Sprawls will illustrate how the different methods produce images, some of the unique features of each, and then take us on a “Fantastic

Voyage” of the human body with images produced by state-of-the-art medical imaging technology.

This presentation is sponsored by the IEEE WNC Section in conjunction with the UNCA IEEE Student Branch. It should prove to be most interesting. Attendance is expected to be large for this extremely interesting subject.

- **February – WNC Joint Engineering Society Meeting – In Conjunction with National Engineering Week** - Sponsored this year by the Society of Civil Engineers. More on this in emails to follow.

Professional Activities

WNC IEEE Local Consultant’s Network (LCN) - [Article by Chuck Stonecypher](#)

Our IEEE Western North Carolina Local Consulting Network was conceived in EXCOM meetings over the past year. We are going public in the current month, January. The IEEE WNC web site will introduce a new page which provides member and local business access to the LCN resources. Initially the page will include a brochure describing our LCN, a database of our current LCN members which is searchable by key words describing technical specialties, success stories from LCN members and, in the near future, access to links which can assist both local businesses and our members in accessing entrepreneurial business support.

We will be meeting with the WNC Business Journal in the coming month and they intend to publish an article introducing our LCN in the February or March issue.

The success of our LCN depends on member participation. We invite all members to our monthly meetings and seek participation to both broaden our membership and guide the structuring of our services to bring consultants and businesses together. Our first meeting of 2006 is planned for the evening of January 11, 6 pm at the Shoney’s Restaurant just east of Rt 26 on Long Shoals Road in Skyland. A formal announcement will be emailed to all members in the week preceding the meeting.

Awards

WNC AWARDS BANQUET, [Article by Fred Orland](#)

The Western North Carolina Section of IEEE held an Awards Banquet on November 15, 2005 at the Country Club of Asheville, Asheville, NC

The section recognized past and present section elected officers and Student Branch Advisors, Joe Fahmy UNCA and Dr. Bob Adams and Dr. Ken Burbank – WCU. They were presented IEEE engraved plaques for their service and dedication over many years to bring our section to where it is today. It was great to have so many past officers from many years ago in attendance.

Certificates of Recognition were awarded to 8 members for exceptional service. Examples are the following successful programs: “Engineering Career Round Table”, UNCA and WCU Senior Class Project Design Reviews, Section Newsletter, Professionalism and Ethics Tutorial, and the launching of the WNC Local Consultants Network.

Recipients are:

1. James Corr - Initiated the section Newsletter 2005
Student Activities Chair 2005
2. James Erickson - Webmaster 2003, 2004 and 2005
Robert Moog Nomination Committee
3. Charles Stonecypher - Consultants Network Founder 2005
4. Robert Pettigrew - Professionalism and Ethics Tutorial
5. Friend Skinner - Robert Moog Nomination Committee
6. A. J. Burke - Pre-college Student Educational Activities
7. Bill Barkley - Section Hard Copy Communications
8. Torry Wickwire - Catering Dinner, PARI 2005

Along with various section awards, the feature award presentation was the **2004 Region 3 “Outstanding Engineer “ Award to Dr. Robert Moog.**

This honor of presenting this prodigious award was mixed with sadness. Dr. Moog died at age 71 in August 2005. The award was posthumously presented by Region 3 Director Bill Harrison to Moog's widow, Ileana Grams and his daughter Michelle Moog. Also present at the ceremony were Michael Adams, President of Moog Music, and Dick Riddle, Region3 past director.

Dr. Bob Moog was aware he had been selected for this award. Ileana Grams indicated that amongst his many awards over his long career Bob Moog especially valued this “Outstanding Engineer” award coming from the IEEE Technical Community recognizing his technical innovations and developments.

Dr. Robert Moog has become a legend in the keyboard music industry. His innovative electronic designs and the development of the “Moog Synthesizer” are responsible for a long list of patents, numerous awards and citations, and an enormous impact on the music industry. He was a pioneer in the world of electronic musical instruments. The analog “Moog Synthesizer” has become the “Standard” against which all other keyboard synthesizers are measured.

We are honored to have had such a distinguished member in our section. He is an inspiration to all of us. He had a remarkable mixture of technical genius, adaptive insight, and personal humility. His work ethic, unpretentious attitude and connection with the basics of life were some of his spiritual gifts to those that knew him. We are pleased to have the opportunity celebrate his life and his great achievements. Bob, we are grateful to have known you and you will be missed.



Outstanding Engineer Award presentation. From left to right: Dick Riddle, Michelle Moog, Ileana Grams and Bill Harrison

The Banquet program included a slide and video clips of equipment development history and several interviews with Dr Moog. A Moog Voyager Synthesizer, Theremin and other electronic musical equipment were demonstrated by Michael Adams and his staff.

WNC section would like to sincerely thank all the individuals who contributed and participated in our events and activities this past year.

Senior Member Nominations Campaign Article by Fred Orland

We had a very successful Senior Member Nomination campaign in 2005. We had 17 members elevated to senior member. They are Dr. Robert Adams, Soroush Adib, Dr. Mark Azadpour, Tom Blooming, Dr. Robert Cannon, James Erickson, Dr. Joe Fahmy, Irving Gibbs, Larry Hull, Allan Morse, Richard Mummert, Brett Pierce, Biren Patel, Chuck Stonecypher, Paul Yanik, Bob Yaniello, and Douglas Wadsworth.

Congratulations to these individuals on their successful upgrades. We need to recognize the extra efforts of Souoush Adib and Dr. Robert Adams for encouraging so many of your peers to submit applications. Also need to thank those of you who wrote and submitted many of the references for these individuals.
You all made it a successful campaign.

For 2006 there are 3 Nominations presently in process: Bill Barkley, Douglas Nuttall, and Philip Schaefer

This is a good time to Upgrade to Senior Member Status. Get the recognition as a senior engineer with a minimum of 10 years experience.

- The professional recognition of your peers for technical and professional excellence.
- An attractive fine wood and bronze engraved Senior Member plaque to proudly display.
- Up to \$25.00 gift certificate toward one new Society membership.

It is easy and there are no additional fees. I will assist you with the nomination. All I need is your resume. Contact Fred Orland at fredorland@ieee.org for questions and assistance.

Submitted by:

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