
Eastern North Carolina Section Newsletter

June 2008



Splinters from the Chair - Meeting our Energy Needs

Thomas Jepsen

Unless your main mode of transportation is a bicycle, I'm sure that you are painfully aware that the price of fossil fuels has more than doubled in the last few years. And this increase sends ripples through the entire economy, leading to increases in transportation costs, home heating and cooling, and even the cost of food, as corn production is diverted to serve our energy needs in the form of ethanol production.

The reality is that we will continue to face high fuel costs for the foreseeable future, as the U.S. competes with newly developing nations for a share of the world's energy supply. In response to this, we need to focus our efforts on two fronts – making more efficient use of our traditional sources of energy, and finding new sources of energy that are renewable.

IEEE has been a leader in both areas. In terms of making more efficient use of energy, IEEE has promoted research and development of plug-in hybrid car technology, and “green computing” - computers that use less energy to do the same amount of processing. IEEE has also supported research into alternative methods of generating electricity, including wind power and solar energy.

While we need to develop alternative sources of power, we also need to improve the efficiency of our existing power grid. Technologies for load monitoring and network management can reduce losses and improve the operation of the power distribution network. We need to continue to find ways to reduce emissions from coal-fired plants, and improve the safety of nuclear plants.

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The Eastern North Carolina chapter of the Power Engineering/Industrial Applications Society, under the leadership of our past chair, Roger Lawrence, has taken the initiative in addressing some of these topics in recent chapter meetings. The December 2007 meeting on solar energy drew a “standing room only” crowd as presenters discussed various solar initiatives in North Carolina. Roger plans to continue addressing related topics in

follow-up meetings this year. How do you think we should address today’s energy challenges? What sort of topics should IEEE ENCS address? If you have an idea for a meeting topic, or if you have expertise in one of these areas and would like to propose a presentation, please let me know. I look forward to hearing from you!

Best Regards
Tom Jepsen

Section Chair
IEEE Eastern North Carolina Section
tjepsen@ieee.org

P.S. If you’d like to read more about some of the above topics, check out *IEEE Spectrum*’s May 2008 issue for an article about converting a hybrid to plug-in operation. And *IEEE IT Professional Magazine*’s January/February 2008 issue features several articles on green computing.

EMBS Chapter Meeting on Health Record Banking

Tom Jepsen

The Eastern North Carolina Chapter of the IEEE Engineering in Medicine and Biology Society (EMBS) sponsored a presentation by Dr. Fay Cobb Payton, Associate Professor of IT/IS at North Carolina State University’s College of Management, and five North Carolina State University students on Health Record Banking on April 30 at the MCNC Auditorium in Research Triangle Park. Health Record Banks (HRBs) are repositories for trustworthy copies of health information

selected or submitted by the consumer from various sources. Health information in a health record bank is owned by the consumer and is not an asset of the health record bank; however, the consumer is not allowed to alter health records. Health record banks would be operated as non-profit organizations. Health record banks protect the individual consumer’s right to health information privacy and confidentiality by acting as

trusted legal custodians of consumers’ health records.

The students prepared presentations on different aspects of health record banking as part of a class exercise. Some of the points discussed in the presentations and following Q&A session included the role of the insurance industry in health record banking, the initiatives created by Microsoft and Google, and the security concerns associated with managing personal health information.

IEEE RTP EMC Chapter

Eric Schumann

The IEEE RTP EMC Chapter is for those interested in EMC and Signal Integrity. Usually, we meet the first

Tuesday of each month. Please check the schedule at the our web site or <http://ewh.ieee.org/r3/enc/emcs> for

more information. Chapter contact is Eric Schumann at ericrs@us.ibm.com.

Fluorine Plasma Ion Implantation (Treatment) Technology: A New Dimension in GaN Device Processing

Prof. Kevin J. Chen

Abstract: Wide-bandgap gallium nitride (GaN) and related compound semiconductor materials possess attractive characteristics including high breakdown voltage, high polarization-induced carrier density and high electron saturation velocity. Rapid progress has been made in material growth and device processing technologies during the last decade. Meanwhile, there remain technical challenges to overcome. For example, unlike the silicon MOSFET technology, in which the devices' threshold voltage can be locally adjusted in the processing stage by ion implantation, the threshold voltage of AlGaN/GaN high electron mobility transistors (HEMTs) is mainly determined in the material growth stage and exhibit negative values. The gate recess technology, which found success in GaAs and InP HEMT technologies, faces serious challenges in GaN due to the lack of efficient wet etching and low-damage dry etching techniques. Recently, a robust approach to modulating the local potential and carrier concentration in AlGaN/GaN HEMTs was developed based on the fluorine plasma ion

implantation (or treatment) technology. The most significant development based on this technology is the demonstration of self-aligned enhancement-mode (E-mode) AlGaN/GaN HEMTs with low on-resistance and low knee-voltage.

In this presentation, I will give a comprehensive overview of the fluorine plasma ion implantation technology. Underlying physical mechanisms will be discussed, together with detailed dc and RF device characteristics. Examples of circuit applications based on monolithic integration of enhancement-/depletion-mode (E/D-mode) HEMTs will also be presented, including DCFL (direct-coupled FET logic) inverters and ring oscillators operating up to 375°C. The E-mode HEMTs' reliability will be discussed using results from stress test and molecular dynamics simulation.

Biography: Dr Chen received a B.S. degree from Peking University in 1988 and the PhD degree from University of Maryland, College Park, in 1993. From 1994 to 1995, he was a research engineer in NTT LSI laboratories, Atsugi, Japan, engaging in the research and development of functional quantum

effect devices and heterojunction FET's (HFET's). In particular, he developed the Pt-based buried-gate technology, which is widely used for GaAs-based and InP-based enhancement-mode HEMT and PHEMT implementations. From 1996 to 1998, he was an assistant professor in the Department of Electronic Engineering, City University of Hong Kong. Dr. Chen then joined the wireless semiconductor division of Agilent Technologies, Inc., Santa Clara, California, in 1999 working on RF power amplifiers used in dual-band GSM/DCS wireless handsets. Dr. Chen joined Hong Kong University of Science and Technology in Nov. 2000, where he is currently an associate professor in the Department of Electronic and Computer Engineering. At HKUST, he has carried out research in wide bandgap III-nitride devices, silicon-based microwave passive components and interconnects technology, GaN-based MEMS devices, and microwave filters design. Currently, his group is focused on developing GaN device technologies for power electronics and high-temperature electronics applications. Prof. Chen has authored or co-authored more

than 160 publications in international technical journals and conference proceedings. Prof. Chen is a senior member of IEEE and a distinguished lecturer of IEEE Electron Device Society.

Prof. Kevin J. Chen

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Industrial Electronics Society (IE) and Computation

Intelligence Society (CI) Joint Chapter Seminar

Title: A Memory-based Reinforcement Learning Algorithm for Partially Observable Markovian Decision Processes

Speaker: Dr. David Siu-Yeung Cho

Date: July 25, 2008 (Friday)

Time: 12:00 – 1:00 pm

Location: Room 2040, EB2 (Engineering Building 2, ADAC Lab), North Carolina State University, 890 Oval Drive, Raleigh, NC 27606

Direction: <http://www.adac.ncsu.edu/Directions/Direction.htm>

RSVP: ragupta@ncsu.edu before July 22, 2008.

Abstract

This talk presents a memory-based reinforcement learning (RL) algorithm called U-Tree that uses selective perception and short-term memory to handle partially observable Markovian decision processes (POMDP). Conventional RL algorithms rely on a set of pre-defined states to model the environment, even though it can learn the state transitions from experience. U-Tree is not only able to do that, it

can also build the state model by itself based on raw sensor inputs. We enhance U-Tree's model generation process and also show that because of the simplified and yet effective state model generated by U-Tree, it is feasible and preferable to adopt the classical Dynamic Programming (DP) algorithm for average reward MDP to solve some difficult POMDP problems. The new U-Tree is tested using a car-driving task with 31,224 world states, with the agent having very limited sensory information and little knowledge about the dynamics of the environment.

Biography

Dr. David Siu-Yeung CHO is an Assistant Professor in School of Computer Engineering at NTU. Concurrently, he is the Director of Forensics and Security Laboratory (ForSe Lab) in the same school. Before joining NTU in 2003, he was a Research Fellow for The Hong Kong Polytechnic University and City University of Hong Kong between 2000-03, where he

worked some projects for neural networks and adaptive image processing. He also led a project of content-based image retrieval by novel machine learning model which is one of the projects attached in the Centre for Multimedia Signal Processing at PolyU HK. Dr. Cho received his PhD and BEng(Hons) from the City University of Hong Kong and University of Brighton, UK, respectively, all in electronic and computer engineering. His research interests include neural networks and its applications, image analysis and 3D computer vision.

<http://www3.ntu.edu.sg/home/assycho/>

June Section Meeting - New Paradigm in Parking Industry

Tom Jepsen

The June Section meeting, held jointly with the ENCS Communications Society on June 19 at MCNC, featured a presentation by Dr. Amalendu Chatterjee on “A New Paradigm in the Parking Industry.” Dr. Chatterjee stated that the parking industry has lacked the sort of customer services that are prevalent in other municipal services such as water, garbage disposal, telephone, electricity, etc. He feels that current parking services are punitive and predatory in nature. In addition, after 9/11, security has become a hot topic in the parking areas, especially in airports.

Dr Chatterjee presented a

variety of technologies to eliminate some of the parking industry’s woes. A web based parking application, called “Perk Park,” developed by EXIMSoft, was presented and demo’ed using Internet and Cell Phone to provide a customer friendly service paradigm that utilized the Information Technology (IT) Infrastructure – a revolutionary concept to save money, improve operational efficiency and provide management flexibility. This system enables users to reserve parking space in facilities that use the system, and to pay for parking online. Another product under development is a Soft Meter Application

(SMA) which would replace conventional parking meters with a software-based application, reducing initial cost and maintenance expense.

Some of the benefits of the proposed system include:

- Traffic Congestion Management
- Pollution Minimization
- Efficient Operation of the Transportation System
- Mobile e-commerce
- Elimination of cash transactions
- Cost Reduction

Both products are under development by EXIMSoft, a software development company with offices in the Triangle area and Ottawa, Canada.

ACME Joint Chapter Meeting with Electron Devices Focus

Todd Nichols

I am pleased to announce a meeting of the ACME joint chapter on Tuesday, July 1 with an Electron Devices Society focus. Dr. Kevin Chen from the University of Hong Kong will speak on fluorine plasma ion implantation in GaN device processing; please see the enclosed abstract and biography. The meeting will start at 6:30 PM with socializing and snacks and will convene at 7:00 PM for the actual meeting and presentation. The meeting will be held

at room 246 in the Monteith Research Center (MRC 246); a campus map is also enclosed. See you there!

Todd Nichols

ACME Chair

Todd Nichols, Ph.D.

Lead RF Engineer

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IEEE Video Game Tournament Yahoo Group

John Powell

I just created a Yahoo group for collecting ideas and planning the IEEE Video Game Tournament. I invited all of you to the group

If you didn't receive an invite, the group is at:

<http://tech.groups.yahoo.com/group/IEEEVideoGames/>

When creating the group, I chose features to keep it secure and limited to the planning group. So, for the time being I will need to approve anyone who wants to join the group. I used my personal email account johnp3d@hotmail.com. Feel free to contact me at this email address.

Please test out the Yahoo group discussion features by

introducing yourself to the group and provide some initial thoughts about what we could do to help plan this event. I'll post an introduction soon to get the ball rolling.

I'm looking forward to seeing your ideas!

John Powell

*Computer Society Chair,
IEEE Eastern North
Carolina Section
Software Engineer;
Emergent Game
Technologies
(919) 313-1314*

Here are a few key tips to get you started:

* To learn more about the

IEEEVideoGames group, please visit

<http://groups.yahoo.com/group/IEEEVideoGames>

* To post a message to this group, send email to IEEEVideoGames@yahogroups.com

* To contact the moderator of this group, send email to IEEEVideoGames-owner@yahogroups.com

* To unsubscribe from this group, send email to IEEEVideoGames-unsubscribe@yahogroups.com

Thank you for choosing Yahoo! Groups as your email group service.

ENCS Annual Family Picnic September 27 – Mark Your Calendars!

Tom Jepsen

ENCS will hold its annual family picnic on Saturday, September 27, at the New Hope Valley Railway in New Hill, NC.

New Hope Valley Railway

5121 Daisey St.

New Hill NC 27562

Phone: 919-362-5416

Web Site: <http://www.nhvry.org>

Plan for a fun-filled afternoon of train rides and refreshments for the whole family. Details and registration information will be available shortly on the ENCS website at <http://ewh.ieee.org/r3/enc/>.



Call for Fellow Nominations

Nominations are being accepted for the IEEE Fellows class of 2010. The rank of IEEE Fellow is the institute's highest member grade, bestowed on an IEEE Senior Member who has had an extraordinary record of accomplishments in any of the IEEE fields of interest. The

deadline for nominations is 1 March 2009.

Senior Members can be nominated in one of four categories: application engineer/practitioner, research engineer/scientist, educator, or technical leader.

The Fellows Web pages contain information regarding

the history of the IEEE Fellows program, the nomination process, access to the Fellows Nomination Kit, lists of Fellows who are eligible to be references and more about the Fellow program. Please visit the Fellows website at <http://www.ieee.org/fellows>.

How to Become an IEEE Fellow

Do you know an IEEE colleague who has made outstanding contributions to the electrical and electronics engineering profession? If so, consider nominating him or her as an IEEE Fellow. The deadline for receipt of complete IEEE Fellow nominations for the Class of 2010 is 01 March 2009.

At the time the nomination is submitted, a nominee must be an IEEE Senior Member whose membership is current and who has completed five years of service in any grade of membership. *Note: IEEE affiliate membership does not apply.* The nominee can come from any field, including academia, government and industry.

Any person, including a non IEEE member, can nominate an IEEE Senior Member. The Nominator cannot be a member of the IEEE Board of Directors, the IEEE Fellow Committee, an IEEE Technical Society/Council Fellow Evaluating Committee Chair, a member of IEEE Technical Society/Council Fellow Evaluating Committee reviewing the nomination, or IEEE Staff.

The nominator is responsible for:

- Preparing the IEEE Fellow Grade Nomination Form
- Soliciting at least five, but no more than eight references capable of assessing the nominee's contributions. The references must be an IEEE Fellow in good standing. References cannot be members of the IEEE Board of Directors, the IEEE Fellow Committee, IEEE Technical Society/Council Fellow Evaluating Committee reviewing the nomination, the Nominator or IEEE Staff. *Note: References will be accepted if a reference is an IEEE Senior Member in good standing and the nominee they are serving as a reference for resides in Region 9.*

- Identifying an IEEE Society/Council whose evaluating committee will assess the nominee's technical qualifications and contributions

- The option of soliciting no more than three Endorsements that can attest to the nominee's field of technical accomplishments. Endorsements cannot be

members of the IEEE Board of Directors, the IEEE Fellow Committee, IEEE Technical Society/Council Fellow Evaluating Committee reviewing the nomination, the Nominator or IEEE Staff.

The process consists of two reviews. The first evaluation is completed by the IEEE Society/Council that the Nominator identified on the nomination form. The Technical Society/Council evaluation is extremely important, because it is an impartial and even-handed view of the nominee's merit, by persons who are familiar with his or her work. Once the Technical Society/Council review is completed, their comments are given to the Fellow Committee.

All nomination materials are forwarded in confidence to the IEEE Fellow Committee, consisting of 52 members, who are all IEEE Fellows selected to represent the 10 IEEE Regions, and have expertise in the technical areas represented by IEEE Technical Societies/Councils.

The Fellow Committee recommends nominees to the IEEE

Board of Directors, according to the following criteria:

- Significant contributions as Application Engineer/Practitioner, Educator Research Engineer/Scientist or Technical Leader.
- Evidence of technical accomplishments
- Evaluation by the IEEE Technical Society/Council selected by the nominator
- Confidential opinions of

references and endorsements

- Service within IEEE and/or other professional engineering organizations
- Total years in the profession

The Fellow Committee submits its nominees to the IEEE Board of Directors during the 3rd Quarter, and the Board acts upon those recommendations at its year-end meeting.

According to IEEE Bylaw I-306-8, the total number of Fellow recommendations in any one-year must not exceed one-tenth of one percent of the voting membership on record as of 31 December of the year preceding. For additional information, nominations instructions, forms and more please visit <http://www.ieee.org/fellow>

Embedded Systems SIG

Charles J. Lord, P.E.

The Embedded Systems SIG has had two meetings so far in 2008 and is planning two more meetings for the year. Our latest meeting was held last month and had a very well received presentation on ARM processors. Vice Chair David Ruden and I are working on developing the topics for the two remaining meetings. Our initial concept is for one 'hardware related' and one 'software related' topic.

I would also like to report on some other developments in IEEE. First, I hope that the section is planning to send at least two people to Sections Congress this fall in Quebec. Much of the cost of one person will be paid by Region 3 and the conference registration price will be free for the primary delegate. The second

(third, etc) attendee will be the responsibility of the section. However, the ROI will be great as there will be a lot of new things rolled out at SC08 as IEEE continues to make the transition to the new Member and Geographic Activities board from the old Regional Activities Board. There are some parts that will be coming out before SC08, including two initiatives that I am deeply involved with. One of these is a new product named vTools. vTools is a set of web-based tools that will allow our section, chapters, and other groups (WIE, Embedded, etc) to seamlessly plan, publicize, and run meetings. Essentially, you will only enter the meeting info once and the system will automatically populate

the calendar, coordinate the meeting site, populate the electronic newsletter, schedule the e-notice, create an on-line registration page, create a sign-in sheet, and will create the L-31 report. I will be the primary trainer for this for sections (will be on-line training) and I have signed us up as an early adopter of the system. I will report more for next month's excom.

On a personal note, I will be travelling a great deal over the foreseeable future and will be generally unavailable during the week for IEEE activities. That being said, I am willing to help with section activities as needed.

Charles
Charles J. Lord, P.E.
c.j.lord@ieee.org

Attention Unemployed Members

Did you know IEEE provides a 50% reduction in dues for unemployed members? Contact IEEE for more de-

tails. Contact IEEE Member Services at:
Telephone: 800-678-4333 (USA & Canada) • 732-981-0060

(Worldwide)
Fax: 732-562-5445
Online: IEEE Jobs Page • <http://www.ieee.org/jobs>
Mail: 445 Hoes Lane • P.O. Box 1331 • Piscataway, NJ 08855-1331

Lasers & Electro-Optics Society Chapter Inaugural Meeting

Adrienne D. Stiff-Roberts

The ENCS Lasers and Electro-Optics Society (LEOS) Chapter hosted its inaugural technical meeting on April 17th at the MCNC Auditorium in the Research Triangle Park. This meeting was held in conjunction with the ENCS and the Engineering in Medicine and Biology Society. The speaker was Dr. Tuan Vo-Dinh, Director of the Fitzpatrick Institute for Photonics, R. Eugene and Susie E. Goodson Distinguished Professor of Biomedical Engineering, and Professor of Chemistry at Duke University. Dr. Vo-Dinh's research focuses on the development of advanced technologies for human health protection and environmental sensing. His

talk, entitled "Nanosensors and Nanoprobes: A New Generation of Tool Set for Environmental and Biomedical Applications," described two nanosensing technologies developed in his laboratory for environmental sensing and medical diagnostics: (1) plasmonic nanoprobes for surface-enhanced Raman scattering biochemical analysis, and (2) nanobiosensors for *in vivo* analysis of a single cell.

The ENCS LEOS chapter was established in March 2007. The Chapter Chair is Adrienne Stiff-Roberts, Assistant Professor of Electrical and Computer Engineering at Duke University, and the Chapter Treasurer is Leda

Lunardi, Professor of Electrical and Computer Engineering at North Carolina State University. The LEOS field of interest broadly includes lasers, optoelectronics, and photonics, and the society is concerned with the research, development, design, manufacture, and application of materials, devices, and systems in the field of quantum electronics.

Adrienne D. Stiff-Roberts

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Spend less time worrying and more time communicating with an IEEE Email Alias. An @ieee.org email address shows you're a part of a community of innovators. the

IEEE Email Alias gives you an @ieee.org address while forwarding mail to your real account - and scanning for viruses at the same time. Over 380,000 virus blocked

last year alone! It's free with your IEEE membership. Sign up today at www.ieee.org/alias

Notes from the Newsletter Editor

Jim Ray

In Memory of Michael Siegl

Long time IEEE member and volunteer, Chris Siegl, and the entire IEEE family surrounding Chris were saddened by the loss of his son. Our thoughts are with Chris and his family.

Michael Seamus Siegl, loving and beloved son of Adelaide and Christopher Siegl, brother of Brendan and Kevin Siegl died Monday, March 24 at UNC Hospital.

Siegl, a graduate of Enloe High School and Wake Tech Community College passed away after a six-week struggle to regain his health. He was an active member of the St. Andrew Catholic Church youth group, Search partici-

pant and, most recently a participant in the post-Katrina efforts in New Orleans with the Jesuit Volunteer Corp.

Siegl was an Eagle Scout (Troop 316) and an assistant scout leader for National Jamboree Troop 1637. He was also a member of Pack 250 in Silver Spring MD, Pack 316, Troop 209 and Troop 316, all in Apex.

He was a long-term employee of the Food Lion on Laura Duncan RD in Apex. His grandfathers Theodor Siegl and Robert Moran and his uncle Michael Maria Siegl preceded Michael in death. His grandmothers, numerous aunts and uncles and cousins

survive him.

A Memorial Mass was held at St. Andrew Catholic Church in Apex on Saturday March 29 at 11 AM.

In lieu of flowers donations may be made to: The Jesuit Volunteers, 801 St. Paul St., Baltimore, MD, 21202 "In honor of Michael Siegl," OR Rex Hospital Foundation, 2500 Blue Ridge Rd., Suite 325, Raleigh, NC 27607, "Attention Department of Pastoral Care in honor of Michael Siegl," OR to UNC Hospital, Department of Pastoral Care, 101 Manning Drive, Chapel Hill, NC 27514, "In honor of Michael Siegl."

Volunteers Needed

✓ *Social Committee - Picnic Planning*

✓ *Newsletter - Member Communications, collecting the articles and photos that go into the newsletter and placing them where they fit best*

✓ *Membership Development - Helping Members Become Senior Members, marketing IEEE membership*

✓ *Awards/Recognition - Finding the Volunteers and Rewarding Their Efforts*

We would like to find other volunteers to assist with IEEE responsibilities. The more folks that help out, the less the burden for any one person.

Feel free to contact any of the current volunteers if you can lend a hand or know someone that will. Jim Ray
919-838-1672 jim@neuse.net

Membership Development

Jim Ray

Instructions and Links for Senior Member Promotion

We are actively looking for another volunteer to assist our members in migrating from Member to Senior Member. Please contact Jim Ray at 838-1672 if you are interested. Below is a summary of steps involved for Members to become Senior Members.

The IEEE Eastern North Carolina Section (ENCS) will nominate you and guide you through the process. We can connect you with senior or fellow member references once you have completed your resume and submitted it to our membership chair, Jim Ray jim@neuse.net

Read all descriptions and requirements. Ask for clarification if anything is unclear.

Be sure to document at least 10 years electrical engineering experience and at least 5 years of significant performance in your resume. Senior member applicants are given "credit" for their educational years:

- 3 years for a baccalaureate degree in an IEEE-designated field

- 4 years if you hold a baccalaureate and masters degree

- 5 years if you hold a doctorate

To clarify, one cannot claim credit for working during the school years AND the school year criteria. Technical writers, managers, IT folks and many other professionals are eligible for IEEE Membership and Senior Membership.

The panel is looking for increasing levels of experience and responsibility. Be sure to clearly state timeframes on your significant and professional experience, as well as educational years.

Include the following in a clearly documented resume (use these subheadings as a guide):

- Name, title and position

held

- Education school(s), dates, and degree level

- Professional affiliations

- Work history with dates and accomplishments

- IEEE volunteer responsibilities (if any)

- Technical articles, publications and/or patents (if any)

Links

Visit our section web site for all pertinent links.

<http://www.ieee.org/enc>

Nomination Information

- Nominator's Name: Jim Ray

- Nominator's Member#: 04609491

- Nominating Section or Society: IEEE Eastern North Carolina Section

- Nominator's Membership Grade: Senior Member

- Nominator's Email: jim@neuse.net

ENCS Members Recognized at IMS

Dev Palmer

Two ENCS members received recognition at the 2008 IEEE International Microwave Symposium in Atlanta GA, sponsored by the Microwave Theory and Techniques Society (MTT-S).

Prof. William T. Joines, Professor in the Department of Electrical and Computer Engineering at Duke University, was elevated to the rank of Life Fellow, cited "For contributions to frequency-selective structures in microwave circuits, biology, and medicine." Prof. Joines earned the BS degree from North Carolina State University, and the MS and PhD degrees from Duke University (all in electrical engineering) in 1959, 1961, and 1964, respectively. Between high school and college he served for four years in the United States Air Force as an airborne radar technician. From 1959 to 1966 he was a Member of the Technical Staff of Bell Telephone Laboratories. He joined the Duke ECE Department as an Assistant Professor in 1966, was appointed Associate Professor in 1968 and Full Professor in 1979. His current research interests include electromagnetic field and wave interactions with materials and structures. Prof. Joines has mentored over 50 MS and

PhD students, has authored 96 refereed papers and over 100 conference presentations, and is an inventor on 19 US patents. He is a member of the Tau Beta Pi, Eta Kappa Nu, Phi Kappa Phi, and Sigma Xi honor societies, and earned Scientific and Technical Achievement Awards from the U.S. Environmental Protection Agency in 1982, 1985, and 1990.

Dr. James W. Mink, Visiting Professor with the Department of Electrical and Computer Engineering at NC State University, received the Microwave Pioneer Award "For establishing the theoretical basis for the development of the practical quasi-optical power combining structures and networks." The Microwave Pioneer Award recognizes an individual or a team not exceeding three persons having made outstanding pioneering technical contributions that advance microwave theory and techniques, described in an archival paper published at least 20 years prior to the year of the award. The cited paper is Mink, J.W., "Quasi-Optical Power Combining of Solid-State Millimeter-Wave Sources," *Trans. MTT*, vol. 34, no.2, pp. 273-279, Feb 1986. This prestigious award is the closest a

microwave engineer can get to the Nobel Prize!

Dr. Mink, also a Life Fellow in the IEEE, received the PhD degree in electrical engineering from the University of Wisconsin at Madison in 1964. Since then has held positions as a Professor at NCSU and as a Program Manager at both the US Army Research Office and the National Science Foundation. His research interests are in the areas of millimeter-wave systems and devices with a primary focus upon quasi-optical millimeter-wave systems and conformal antennas, with emphasis on wireless communications. He has authored or co-authored over 90 refereed papers, book chapters, and presentations, and is an inventor on six US patents. Dr. Mink was the editor-in-chief of the *IEEE Transactions on Microwave Theory and Techniques* from 1997 to 2000, and also served as guest editor for two special issues. He served on the Administrative Committees for both MTT-S and the Antennas and Propagation Society. He was the recipient of the the Issai Lefkowitz Award and two Bronze Metals for Army Research and Development Achievement from the Department of the Army, the

Superior Civilian Service Award from the Department of Army, the IEEE Third Millennium Medal, and a Meritorious Service Award from MTT-S.

Please join the ENCS Excom in congratulating these two outstanding IEEE members!

Dev Palmer

ENCS Vice Chair

dev.palmer@ieee.org

Eastern NC Section Awards

Can you think of a colleague that deserves recognition by our section? If so, please take a few minutes to nominate that person by visiting our section nomination page <http://ewh.ieee.org/r3/enc/awards.htm>

OUTSTANDING ENGINEER

To recognize an engineer who, through technical and professional abilities, has made an outstanding contribution to the electrotechnology profession.

OUTSTANDING SERVICE

To recognize one who, by service, has made an outstanding contribution to the electrotechnology profession.

OUTSTANDING ENGINEERING EDUCATOR

To recognize an educator who has shared technical and professional abilities through teaching in industry, government, or in an institution of higher learning and in so doing has made an outstanding contribution to the electrotechnology profession.

ADDITIONAL SECTION AWARDS

Our section would also be pleased to receive nominations for the following section awards:

- Entrepreneur of the Year
- Inventor of the Year
- Author of the Year
- Star of Yesteryears
- Volunteer of the Year
- Chairman's Service

You may make a nomination for any of these awards by email to Lee Haas, eelee@ieee.org. Please choose one of the above three nomination formats and provide the information you judge appropriate for the award type. Be sure to indicate the title of award for which you are making the nomination.

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And come explore our
Virtual Community

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