The IEEE Newsletter

PUBLICATION OF THE NORTH JERSEY SECTION OF THE INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS

NJ Control Systems Chapter:

Dynamic Workflow Modeling and Analysis of Incident Command Systems

On Thursday, October 6, 2005, the IEEE North Jersey Section Control Systems Chapter will host a presentation titled "Dynamic Workflow Modeling and Analysis of Incident Command Systems." The speaker will be Dr. Jiacun Wang.

About the Talk

The dynamic and flexible nature of incident command systems raise a challenge to the research and implementation of workflows. The significance of applying formal approaches to the modeling and analysis of workflows has been well recognized and many such approaches have been proposed. However, these approaches require users to master considerable knowledge of the particular formalisms, which impacts the application of these approaches on a larger scale. This work introduces a new formal, yet intuitive approach for the modeling and analysis of workflows, which attempts to overcome the above problem. In addition to the abilities of supporting workflow validation and enactment, this new approach possesses the distinguishing feature of allowing users who are not proficient in formal methods to build up and dynamically modify the workflow models that address the flexibility needs of incident command systems.

About the Speaker

Jiacun Wang received the PhD in electrical and computer engineering from Nanjing University of Science and Technology (NUST), China, in 1991. He is currently an associate professor of the software engineering department at Monmouth University, West Long Branch, New Jersey. From January 2001 to August 2004, he was a member of the scientific staff with Nortel Networks in Richardson, Texas. Prior to joining Nortel, he was a research associate of the School of Computer Science, Florida International University (FIU) at Miami. Prior to joining FIU, he was an associate professor at NUST. His research interests include software engineering, discrete event systems, formal methods, and real-time distributed systems. He authored Timed Petri Nets: Theory and Application (Norwell, MA: Kluwer, 1998), and published more than 40 research papers in journals and conferences. He is an editor of IEEE Transactions on Systems, Man and Cybernetics, Part C, and has served as a program committee member for many international conferences. Dr. Wang is a senior member of the IEEE.

Time: 5:00-6:00 PM, Thursday, October 6, 2005.
Place: New Jersey Institute of Technology (NJIT), Room 202, ECE Center, Newark, NJ. Directions are available at http://www.njit.edu/University/Directions.html.
Information: Professor Timothy Chang (973) 596-3519 (changtn@njit.edu).

Proposed Slate of Officers for the 2006 IEEE North Jersey Section

Below is the list of proposed officers for the 2006 IEEE North Jersey Section as presented by the IEEE North Jersey Section Nominating Committee. If a North Jersey Section IEEE member in good standing would like to run for an office, please contact Keith Saracinello by October 10th at k.saracinello@ieee.org or (908) 791-4067. Two basic requirements include:

- a minimum of 25 section member signatures with names and member numbers clearly printed
- the person will serve if elected

Chair:	Har Dayal
1st Vice-Chair:	Bhanu Chivakula
2nd Vice-Chair:	Kirit Dixit
Treasurer:	Dr. Sanghoon Shin
Secretary:	Gary Hojell
Members-at-Large:	Pete Donegan Amit Patel Seth Jakel

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NEWSLETTER STAFF

Editor ..... Keith Saracinello
Business Manager ..... Keith Saracinello
k.saracinello@ieee.org (908) 791-4067

Deadline for receipt of material is the 1st of the month preceding the month of publication. All communications concerning editorial and business matters, including advertising, should be sent to the Business Manager via e-mail at *k.saracinello@ieee.org* or to *The IEEE Newsletter, c/o Keith Saracinello, 25 Messenger Ln, Ringoes, NJ 08551*, (908) 791-4067.

IEEE NJ SECTION HOME PAGE
http://web.njit.edu/~ieeenj/
IEEE NJ SECTION NEWSLETTER HOME PAGE
http://web.njit.edu/~ieeenj/NEWSLETTER.html

REPORT ADDRESS CHANGES TO:
IEEE Service Center, 445 Hoes Lane, P.O. Box 1331, Piscataway, NJ 08855-1331, (732) 981-0060. It is not necessary to inform the North Jersey Section when you change your mailing address. "The IEEE Newsletter" and other section mailings use a list provided by IEEE's national headquarters.

The North Jersey Section Executive Committee usually meets the first Wednesday (except holidays and December) of each month at 7:00 PM. Meetings are open to all members. For information on meeting agenda contact Secretary Russell Pepe at (201) 960-6796, rpepe@att.net.

Message from the Section Chair:

This year in the Region 1 BOG summer meeting, our Northern NJ Section had a good representation. With the exception of our Treasurer and Vice-Chair-1, all invitees attended the leadership workshop. The following are the highlights of the meeting:

- The North Jersey Section received 5 Region 1 Awards out of 27 total, including a PACE Award for the 2nd year in a row, due to excellent work on the part of the PACE and Award Committees.
- Gerhard Franz was elected Southern Area Chair which will represent our Area. Previously our area was known as Area B.
- IEEE Sections are not required to have their own BY-LAWS. They will be governed by the IEEE BYLAWS and are operated through the regional operational manuals. Sections may have their own manuals and bylaws if they desire but they must be operated under IEEE rules.
- Life Member Chapter is recognized as an affinity group and will get a rebate from the IEEE if it meets the affinity group requirements.
- Each section is encouraged to have a Pre-College Activities Chair and needs to be active for encouraging the engineering profession among the students at early age. Activities need to be reported to the Regional Coordinator (Larry Sr.).
- All section one day conferences, seminars and workshops need to be reported to the Regional Coordinator (Charles Rubenstein).
- This year's Section Congress Meeting will be held in Tampa, FL. Primary delegates are paid by the Region. Other delegates from any section are required to be paid by the section or through any other funds (personal etc).
- Three Candidates for IEEE President made presentations to the Region 1 assembly. Members are encouraged to vote early.
- Three Candidates for IEEE-USA made presentations to the Region 1 assembly. Members are encouraged to vote early. Charles Rubenstein is among the three candidates from our area.
- 4 proposals were voted upon by the Region 1 BOG. These will be forwarded to the Section Congress which will select 10 proposals out of 40 to be submitted by 10 Regions for implementation.

This is the time again for the Section to nominate the slate of officers to run the section. Please support the section activities by volunteering for IEEE activities.

Har Dayal - Section Chair

NJ Section PACE & GOLD:

Engineers Meet:

Business Meeting

On Wednesday, October 12, 2005 the North Jersey Section Professional Activities Committee and Graduates of the Last Decade will host a Business meeting to network, socialize, enjoy refreshments and discuss the professional side of engineering

All will have an opportunity to present their views about the profession, the job market, review past meetings and discuss pressing issues for PACE.

Bring job leads and information

Members and students from other professional societies and engineering disciplines are always welcome. We now include members from IEEE, ASME and AEA. For more information about these groups see:

www.aea.org/chapters/nj/
www.ieeeusa.org
web.njit.edu/~ieeenj/
www.asme.org/sections/northjersey
ewh.ieee.org/reg/1/

Time: 6:30 to 9:00 PM, Wednesday, October 12, 2005. Refreshments will be served.
Place: Clifton Memorial Library, 292 Piaget Ave, Clifton, NJ, (973) 772-5500.
Information: Paul Ward, (973) 790-1625 (PWard1130@aol.com) or Richard F. Tax, (201) 664-6954 (rtax@bellatlantic.net).

Conference Rooms Needed!

The North Jersey Section (Education Committee) is looking for conference room facilities to hold their training seminars. The seminars are being held on one weeknight from 6:30 PM to 9:00 PM. In return for providing the conference facility for free, the organization can get free registration up to three members in the course/seminar. Please contact Bhanu Chivukula, Education Committee Chairman, at b.chivukula@computer.org for suggestions or discussions, if interested.

IEEE North Jersey Section Activities
October 2005

Oct. 5 – "NJ Section Meeting", 6:30 PM, "Executive Committee Meeting" - 7:00 PM, ITT, 100 Kingsland Rd, Clifton, NJ. Russell Pepe at rpepe@worldnet.att.net.

Oct. 6 – "2005 MTT/AP Symposium and Mini-Show" – MTT-S/AP-S Chapter, 9:30 AM - 5:30 PM, Prime Hotel & Suites (formerly Radisson Hotel Fairfield), 690 Route 46 East, Fairfield, NJ. Kirit Dixit (201) 669-7599 (kdixit@ieee.org), Art Greenberg (973) 386-6673 (ahg1@lucent.com), Har Dayal (973) 633-4618 (har.dayal@baesystems.com), or George Kannell (973) 386-4170 (gkk@lucent.com).

Oct. 6 – "Dynamic Workflow Modeling and Analysis of Incident Command Systems" - NJ Control Systems Chapter, 5:00-6:00 PM, New Jersey Institute of Technology (NJIT), Room 202, ECE Center, Newark, NJ. Professor Timothy Chang (973) 596-3519 (changtn@njit.edu).

Oct. 11-Nov. 29 – "Project Management" – North Jersey Section, Tuesday Evenings, 8 sessions, 6:30-9:00 PM, NJ International Bulk Mail Center, 80 County Rd, Jersey City, NJ. Bhanu Chivukula (b.chivukula@computer.org).

Oct. 12 – "Engineers Meet: Business Meeting" - NJ PACE & GOLD, 6:30 – 9:00 PM, Clifton Memorial Library, 292 Piaget Ave, Clifton, NJ. Paul Ward, (973) 790-1625 (PWard1130@aol.com) or Richard F. Tax, (201) 664-6954 (rtax@bellatlantic.net).

Oct. 13 – "Opportunistic Encryption for Robust Wireless Security" - NJ Communications Chapter, 6:30 PM (refreshments at 6:15 PM), New Jersey Institute of Technology (NJIT), Room 202, ECE Center, Newark, NJ. Dr. Nirwan Ansari (973) 596-3670 (nirwan.ansari@njit.edu) or check http://web.njit.edu/~ieeenj/comm .html for the latest updates.

Oct. 20– "Life Grade Luncheon" – **(Reservations are Closed)** – 11:30 AM, Hamilton Park Conference Center, 175 Park Ave, Florham Park, NJ 07932. Ken Oexle (973) 386-1156.

Oct. 21 – "Oracle Database Concepts Including SQL for Programmers" - NJ Section, 9:00 AM to 1:00PM, Radisson Hotel - Saddle Brook, 129 Pehle Ave, Saddle Brook, NJ. Bhanu Chivukula at b.chivukula@computer.org.

Oct. 22 – "Scenic Hudson River Boat Ride" – NJ PACE, 12:00-2:00 PM, South Dock, United States Military Academy, West Point, NY. RSVP to lisa.shay@ieee.org by October 14.

Oct. 27 – "The Life of SPICE" - NJ Consultants' Network, 7:30 PM, Aeroflex/KDI-Integrated Products, 60 S. Jefferson Rd, Whippany, NJ. Robert Walker (973) 728-0344 or www.TechnologyOnTap.org.

Oct. 28 – "Advanced Concepts in Transformer Protection Technical Seminar" - NJ IAS/PES Chapters, 9:00 AM – 1:00 PM, PSE&G Training Center, 234 Pierson Ave, Edison NJ. Ronald Quade, PE, (732) 205-2614 or rwquade@ieee.org.

Upcoming Meetings

Nov. 2 – "NJ Section Meeting", 6:30 PM, "Executive Committee Meeting" - 7:00 PM, ITT, 100 Kingsland Rd, Clifton, NJ. Russell Pepe at rpepe@worldnet.att.net.

Nov. 7 – "Trustworthy Systems through Quantitative Software Engineering" - NJ Computer Chapter, 7:30 PM, Barnes and Noble, 2nd Floor Mezzanine, Clifton Commons, Route 3 East, Clifton, NJ, (973) 779-5500. Seth Jakel, (973) 731-1902, (973) 820-1865 (sgjakel@comcast.net), or Vivek Shaiva (908) 229-6125 (vshaiva@computer.org).

Nov. 9 – "GaN-based Microwave Field Effect Transistors" – EDS/C&S, & MTT-S/AP-S Chapters, 7:00 PM (buffet at 6:15 PM), New Jersey Institute of Technology (NJIT), Room 202, ECE Center, Newark, NJ. Dr. Richard Snyder (973) 492-1207 (RS Microwave), Dr. Edip Niver (973) 596-3542 (NJIT), Har Dayal (973) 633-4618 (har.dayal@baesystems.com), or Kirit Dixit (201) 669-7599 (kdixit@ieee.org).

Nov. 18 – "Upgrade of Generator Protection to Comply With IEEE Guides Technical Seminar" - NJ IAS/PES Chapters, 9:00 AM – 1:00 PM, PSE&G Training Center, 234 Pierson Ave, Edison NJ. Ronald Quade, PE, (732) 205-2614 or rwquade@ieee.org.

Nov. ? – "Field Programmable Gate Array Seminar" - NJ Section, Time, Date and Location TBA. See http://web.njit.edu/~ieeenj/ and upcoming Newsletters for updates.

Members and Non-Members Welcome

PLEASE POST

NJ Consultants' Network:

The Life of SPICE

On October 27, 2005, the IEEE Consultants' Network of Northern NJ (CNNNJ) will host a discussion on "The Life of SPICE". CNNNJ is honored to present this talk by IEEE Fellow Dr. Nagel.

About the Talk

The integrated circuit industry thrives on constant change and is not particularly known for tradition. It is curious, then, that the SPICE circuit simulation program, in one form or another, has been around the industry for over thirty years. That means that many engineers entering this booming business today weren't even born when I released the first version of SPICE! In this talk, I will chart the journey of SPICE, starting as a teaching program at the University of California, Berkeley, and spreading into industry, launching a cottage industry of software houses writing and supporting "alphabet SPICE." I also will give credit to all of the early principals in this journey, and share some of my more amusing experiences during the journey. Nobody can say for sure, but I will offer my opinions on how this particular program has evolved in thirty years and yet stayed pretty much the same. I can think of no other computer program that can make that claim.

About the Speaker

Laurence W. Nagel has worked in the integrated circuit industry for about 30 years. While earning his BS, MS, and PhD degrees at the University of California, he developed the SPICE circuit simulation program and launched a cottage industry of SPICE simulation tools. Mr. Nagel then began a 20 year career at Bell Laboratories which included developing the ADVICE circuit simulation program; participating in the development of process and device simulation tools; participating in the development of the Kull-Nagel bipolar model; designing analog circuits for submicron NMOS processes; working in the AT&T Intellectual Property Division on assertion of patents and negotiation of patent licenses; and serving as project manager in the development of the Celerity circuit simulation program. Mr. Nagel joined Anadigics, Inc. in 1995, where he worked on supporting simulation of RF integrated circuits; modeling and characterization of GaAs MESFET device processes; and importing silicon CMOS design tools and foundry support. In 1998, Mr. Nagel founded his own company, Omega Enterprises, which offers consulting services in analog and RF integrated circuit design, device modeling, circuit simulation, and expert witness work in patent and trade secret litigation.

All Welcome!

Everyone welcome. No registration needed. Free admission.

About the Consultants' Network

Founded in 1992, the IEEE Consultants Network of Northern NJ encourages and promotes the use of independent technical consultants by business and industry.

Time: 7:30 PM, Thursday, October 27, 2005.

Place: Aeroflex/KDI-Integrated Products, 60 S. Jefferson Rd, Whippany, NJ. (Entrance at rear of building)

Information: For directions and up-to-date meeting status, call Robert Walker (973) 728-0344 or visit our website at www.TechnologyOnTap.org. To download a map to KDI, go to: http://www.mcekdi-integrated.com/directions.htm.

The NJ Section Education Committee Requests Your Feedback

The IEEE North Jersey Section has been helping fellow engineering professionals for the last fifty years. The Education Committee has successfully conducted software and engineering training courses over the last few decades. The Committee is committed to professional development of the members and the instructors for the courses are very qualified and experienced in their respective fields. Classes are arranged on weekday evenings or on Saturdays provided at least fifteen candidates are available. Completion certificates are issued by IEEE Headquarters with CEU credits for the number of training hours.

Due to the slow growth of the economy and several other factors, registration for these courses has diminished over the last few years. I would urge members to send their feedback regarding what courses they would be interested in, the format, location, and day/time, etc., by email to b.chivukula@computer.org.

Regards,
Bhanu Chivukula
Chair, Education Committee
Vice Chair, IEEE North Jersey Section

North Jersey Section Seeks Committee Chairs and Volunteers

The NNJ IEEE Section ExCom is seeking new volunteers to help conduct business at the section level for the benefit of its membership in the North Jersey section and surrounding areas. There are a variety of volunteer positions open and available. They range from long-term to short-term, technical to non-technical, leadership or just participatory. All activities have varying levels of time commitment. For Chapter Chairs, you must be a member of the corresponding IEEE Society.

If you would like to become involved with volunteering in some of these efforts or positions or just become more informed about what is happening at the NNJ IEEE Section, please contact the persons listed below for additional information and questions. You can even attend the section business meeting held the first Wednesday of every month to find out more and other volunteer activities that require some help.

Some of the positions currently open and available are:

- *Aerospace & Electronics Chair/Vice-Chair*. Contact Har Dayal (har.dayal@baesystems.com).
- *Engineering in Medicine & Biology Chair/Vice-Chair*. Contact Har Dayal (har.dayal@baesystems.com).
- *Solid State Circuits Chair/Vice-Chair*. Contact Har Dayal (har.dayal@baesystems.com).
- *Women in Engineering Affinity Group Coordinator*. Contact Har Dayal (har.dayal@baesystems.com).
- *GOLD Affinity Group Chair*. Contact Dick Tax (rtax@bellatlantic.net)
- Historian Committee seeks help collecting IEEE historical information and specifically IEEE North Jersey Section History. Contact Al Stolpen (a.stolpen@ieee.org)
- Student Activities Committee seeks new volunteers for North Jersey. Contact Amit Patel (a.j.patel@ieee.org)

Additionally, if interested volunteers would like to get more general information about other activities in our section, visit the North Jersey Section website for newsletter information http://web.njit.edu/~ieeenj/ or contact Har Dayal, har.dayal@baesystems.com.

NJ Communications Society:

Opportunistic Encryption for Robust Wireless Security

On October 13, 2005, the IEEE North Jersey Section Communications Society Chapter along with NJIT will host a presentation on "Opportunistic Encryption for Robust Wireless Security." The speaker will be Dr. R. Chandramouli.

About the Talk

Some of the very same properties that give ciphers their cryptographic strength also cause throughput reduction when operating in an interference prone wireless network. Therefore there is a fundamental trade-off between encryption based security and achievable throughput in secure wireless networks. This trade-off has not yet been explored in a comprehensive or systematic manner. In this talk, we present a mathematical framework to analyze this issue. Using mathematical optimization techniques we show that a method we call "opportunistic encryption" is able to exploit wireless channel opportunities to optimally trade-off security for throughput. The effect of an attacker will also be discussed. Numerical results for opportunistic AES encryption will be presented to illustrate this idea. It is observed that opportunistic encryption produces significant performance improvements compared to traditional fixed encryption.

This is joint work with C. Nanjunda, M. Haleem and K.P. Subbalakshmi.

About the Speaker

Dr. Chandramouli is an Associate Professor in the ECE department at Stevens Institute of Technology. His research in the areas of wireless networking and security, media security and forensics, and applied probability theory is funded by the NSF, U.S. Air Force, U.S. Army, and industry. He has given plenary talks at the Digital Forensics Research Workshop and Number Theory for Security Conference, among others.

He is an Associate Editor for the IEEE Transactions on Circuits and Systems for Video Technology and a Co-founder and Program Co-Chair of the IEEE International Workshop on Adaptive Wireless Networks. He is a recipient of the NSF CAREER award and IEEE Richard E. Merwin Award. His recent paper on covert channel identification has been recognized as one of the top papers in IEEE ICIP (2004) by the IEEE Signal Processing Society.

All Welcome!

You do not have to be a member of the IEEE to attend. Bring your friends.

Time: 6:15 PM (refreshments start at 6:00 PM), Thursday, October 13, 2005.

Place: New Jersey Institute of Technology (NJIT), Room 202, ECE Center, Newark, NJ. Directions are available at http://www.njit.edu/University/Directions.html.

Information: Dr. Nirwan Ansari (973) 596-3670 (nirwan.ansari@njit.edu) or check http://web.njit.edu/~ieeenj/comm.html for the latest updates.

NJ Computer Chapter:

Trustworthy Systems through Quantitative Software Engineering

On Monday, November 7, 2005, the IEEE North Jersey Section Computer Society Chapter and the Barnes and Noble book store in Clifton will jointly host a presentation titled "Trustworthy Systems through Quantitative Software Engineering" by Lawrence Bernstein.

About the Talk

Software system development is too often focused solely on schedule and cost. Sometimes performance and functional technical requirements become an issue. Rarely is trustworthiness considered. Not only must software designers consider how the software will perform they must account for consequences of failures. Trustworthiness encompasses this concern. This talk defines trustworthiness in terms of Safety, Reliability and Safety. A means for doing quantitative analysis of requirements and for quantitative software engineering will be presented. This talk is part of a book discussion of the speaker's new book at Barnes and Noble in Clifton.

About the Speaker

Lawrence Bernstein is a recognized expert in software engineering, software technology, project management, and technology conversion. He is Industry Research Professor of Computer Networks and Software Engineering at Stevens Institute of Technology in Hoboken, NJ. He directs the Stevens Quantitative Software Engineering program. He is director of the New Jersey Center for Software Engineering.

He consults on software process improvement. For one company he recommended the split between R&D and software assets when it acquired another company. He was an expert witness in two arbitration cases where he assessed the quality and origins of a large operations support software system, and advised another company on the unreasonableness of their claims in a software product dispute. He has worked with the Price Waterhouse Coopers' Technology Center for several clients.

He had a 35-year distinguished career at Bell Laboratories in managing large software projects and since retirement heads his own consulting firm. At Bell Labs he became a Chief Technical Officer of the Operations Systems Business Unit and an Executive Director. In parallel with these Bell Labs positions he was the Operations Systems Vice President of AT&T Network Systems from 1992-1996. He is a Fellow of the Institute of Electrical and Electronics Engineers, Inc. (IEEE) and a Fellow of the leading software organization, the Association for Computing Machinery (ACM). He is a member of the Russian Information Academy; a visiting Associate of University of Southern California's Center for Software Engineering and an Industrial Fellow of Ball State Center for Information and Communication Sciences. He is a member of the honor societies Tau Beta Pi and Eta Kappa Nu and is listed in Who's Who in America. He was awarded the coveted Bell South "Eagle" for seminal contributions to their automatic service provisioning systems. He was awarded the Patriotic Civilian Service Award, by the US Army, for outstanding performance on the SAFEGUARD software project.

All Welcome!

Attendance is free of charge, and you do not have to be a member of the IEEE to attend. Bring your friends and network both before and after the presentation.

Time: 7:30 PM, Monday, November 7, 2005.

Place: Barnes and Noble, 2nd Floor Mezzanine, Clifton Commons, Route 3 East, Clifton, NJ, (973) 779-5500.

Information: Seth Jakel, (973) 731-1902, (973) 820-1865 (sgjakel@comcast.net), or Vivek Shaiva (908) 229-6125 (vshaiva@computer.org).

NEWS from IEEE-USA:

IEEE-USA Commends Congress for Adopting Reliability, Security Standards for U.S. Electric Power Supply

Washington (4 August 2005) - IEEE-USA-supported recommendations to ensure a reliable, adequate and secure supply of electricity are contained in the Energy Policy Act (H.R. 6) of 2005 that Congress passed late last month.

The legislation empowers the Federal Energy Regulatory Commission (FERC) to create an Electric Reliability Organization (ERO) to establish and enforce mandatory reliability standards of the North American electric system, including elements in Canada and Mexico. The ERO will collect dues from bulk power system owners and operators and have the authority to fine those not in compliance.

The energy bill, which the President is expected to sign Monday, also directs the Department of Energy to adopt IEEE Standard 1547 as the national technical standard for interconnecting distributed energy resources to the electric power grid. The "Standard for Interconnecting Distributed Resources with Electric Power Systems," approved by the IEEE Standards Board in June 2003, addresses performance, operation, testing and safety of the interconnection of products and services, such as hardware and software for distributed power control and communication.

"We commend Congress for recognizing the importance of creating the ERO," IEEE-USA Energy Policy Committee Chair Fernando Alvarado said. "Adoption of IEEE 1547 and the creation of the ERO will help ensure the reliability, security and diversity of the electric power grid, which is essential to our nation's economic health and national security."

IEEE-USA has been working on the establishment of an ERO since November 2002, when it released a reliability position (http://www.ieeeusa.org/policy/positions/reliability.html). The organization proposed the interconnection standard a year earlier (http://www.ieeeusa.org/policy/positions/interconnection.html).

The ERO is designed to help prevent a repeat of the August 2003 cascading blackout that affected 50 million people in the northeastern United States and parts of the Midwest and Canada. IEEE 1547 will facilitate the development of distributed energy generation technologies such as fuel cells, photovoltaics and wind turbines. The standard's criteria and resources also address product quality, interoperability, design, engineering, installation and certification.

For more information, go to http://www.ieeeusa.org.

NJ EDS/C&S & MTT-S/AP-S Chapters:

GaN-based Microwave Field Effect Transistors

On November 9, 2005, the IEEE NJ Section Electron Devices, Circuits and Systems Chapters together with MTT/S/AP-S and the New Jersey Institute of Technology will host a talk on "GaN-based Microwave Field Effect Transistors." The speaker will be Dr. Michael Shur.

About the Talk

Wurtzite (hexagonal) symmetry makes the device physics of GaN/AlN/InN heterostructure field effect transistors (HFETs) to be quite different from that from more conventional GaAs/InAs/InP and Si based transistors. Spontaneous and piezoelectric polarizations at AlGaN/GaN or AlGaInN/GaN lead to the formation of two-dimensional (2D) electron gas or 2D hole gas (depending on the surface polarities). These 2D electrons have a higher mobility compared to that for three dimensional electrons but a reduced peak velocity. In high electric fields, electron runaway effects and overshoot and ballistic effects play a dominant role. A field dependent penetration of the electron wave function from the device channel into the wide band gap barrier layer strongly affects the real space transfer and device breakdown voltage. Quantum well designs (e.g. incorporating an InGaN quantum well between the wide band gap AlGaN barrier layer and GaN buffer and thin AlN barrier) might be required to control this wave function penetration and the real space transfer. A high electric field at the gate edges leads to the additional strain and hot electron effects causing the current collapse and gate lag. Optimized field plate and recessed gate designs (including the use of textured AlGaN for easily controlled etching) help solve this problem and improve the device reliability. Inverted HFET designs might result in reduced access resistance, a large current carrying capability, lower gate leakage and better thermal control. Large energy gap discontinuities at heterointerfaces allow for obtaining very large densities of 2D electrons (exceeding those at AlGaAs/GaAs heterointerfaces by a factor of 10 to 20) with a commensurate increase in the output power. Such large densities make the insulated gate design – MOSHFET - (with the dielectric layer separated from the active channel by the wide band gap barrier layer) practical, since one can tolerate a much higher density of the surface states. Large electron densities in the HFET channels also minimize the 1/f noise making it to be smaller than in doped GaN films. Insulated gate designs makes devices superior for DC and RF power applications.

Deep understanding of this new physics of GaN/AlN/InN HFETs is a prerequisite for the optimization of their design, improving their reliability and performance, and achieving a higher frequency operation.

About the Speaker

Michael Shur received his MSEE (engineer) degree (with honors) from St. Petersburg Electrotechnical Institute, PhD in Physics and Mathematics and Doctor of Science in Physics and Mathematics degree, both from A. F. Ioffe Institute. He has held research or faculty positions at A.F. Ioffe Institute, Cornell, Oakland University, University of Minnesota, and University of Virginia, where he was John Money Professor of Electrical Engineering and served as Director of Applied Electrophysics Laboratories. He is now Patricia W. and C. Sheldon Roberts '48 Professor of Solid State Electronics, Professor of ECSE, Professor of Physics, Applied Physics and Astronomy, Director of Center for Broadband Data Transport Science and Technology, and co-Director of the NSF I/UCR Center "Connection One." In 2001-2002, he served as Acting Director of Center for Integrated Electronics at RPI. Dr. Shur is Fellow of IEEE, Fellow and life member of the American Physical Society, Fellow of Electrochemical Society, Fellow of World Innovation Foundation, AAAS, Life Member of IEEE MTT, of Sigma Xi, and of Humboldt Society of America, member of Eta Kappa Nu, and Tau Beta Pi, Electromagnetic Academy, Materials Research Society, ASEE, Sigma Xi, elected member and former Chair of US Commission D, International Union of Radio Science (URSI), and elected member of NRC of URSI (2003-2004). Dr. Shur is Editor-in-Chief of the International Journal of High Speed Electronics and Systems and of the book series on Selected Topics in Electronics and Systems (World Scientific), Regional Editor of physica status solidi, Member of the Honorary Board of Solid State Electronics, member of the International Advisory Committee of Journal of Semiconductor Technology and Science, Vice-President for publications of the IEEE Sensor Council, and member (1999-2003) and Chair (2004-2005) of the IEEE Prize Papers/Scholarships Award Committee. He is also Distinguished Microwave Lecturer of IEEE MTT and Distinguished Lecturer of IEEE EDS. In 1990-1993, he served as an Associate Editor of IEEE ED Transactions.

Dr. Shur has also served as Chair, Program Chair, Organizing and Program Committee Member of many IEEE conferences. He is one of co-developers of AIM-Spice (with over 60,000 users world wide) and co-founder of Sensor Electronics Technology, Inc. In 1994, the Saint Petersburg State Technical University awarded him an Honorary Doctorate. He has published many technical papers, authored, co-authored or edited 33 books and 28 book chapters, and has been awarded over 30 patents on semiconductor devices and circuits. Several of his technical publications received the best paper awards. Among his other awards are the Gold Medal of the Russian Ministry of Education, several A. F. Ioffe Best Paper Awards, van der Ziel Award, Senior Humboldt Research Prize, Pioneer Award from Compound Semi, RPI School of Engineering Research Award, and Commendation for Excellence in Technical Communications. Dr. Shur is listed by the Institute of Scientific Information (ISI) as a highly cited researcher in engineering.

All Welcome!

You do not have to be a member of the IEEE to attend.

Time: 7:00 PM, Wednesday, November 9, 2005. Free buffet will be starting at 6:15 PM.

Place: New Jersey Institute of Technology (NJIT), Room 202, ECE Center, Newark, NJ. Directions are available at http://www.njit.edu/University/Directions.html.

Information: Dr. Richard Snyder (973) 492-1207 (RS Microwave), Dr. Edip Niver (973) 596-3542 (NJIT), Har Dayal (973) 633-4618 (har.dayal@baesystems.com), or Kirit Dixit (201) 669-7599 (kdixit@ieee.org).

Member-Get-A-Member Program

When you experience something good, you want to share it with others. It's the natural thing to do.

This is the idea behind the IEEE Member-Get-A-Member (MGM) Program. Most members know how beneficial IEEE membership is in their professional lives and what it has meant to their technical and career development. With this campaign, IEEE members themselves can get the word out about IEEE's membership benefits and as a result, help IEEE membership grow.

Beginning 1 September 2005 and running through the 2006 IEEE dues year which ends on 15 August 2006, the IEEE will conduct the MGM Program to encourage members to recruit their colleagues to join IEEE. In return for their efforts, the recruiter will earn a US$5.00 credit voucher for each member recruited which can be used toward 2006 IEEE dues, IEEE Society fees or the purchase of IEEE products and services.

Rules of the Program

- IEEE members (Society affiliates, non-members and past members are not eligible) may recruit members above the grade of Student for the MGM program. (See MGM Recruiting Tips)
- Completed applications, with full dues payment, must be submitted with the recruiter's name and membership number --both are required -- in the proper recruiter box on the application.
- Applications received without a recruiter's membership number will be disqualified and there will be no retroactive qualifying of recruiters.
- The MGM Program may not be combined with other membership incentive programs such as discounted Society conference membership promotions.
- Applications may be submitted in hard copy or online. To request a hard-copy application, please send your request (with your fax number and/or mailing address) to application-request@ieee.org.
- To qualify, applications must be received at IEEE before 15 August 2006. All cash award vouchers will be mailed to qualified recruiters prior to 1 October 2006 and will be valid through 31 December 2006.

MGM Recruiting Tips

- Invite at least one non-member colleague to attend an IEEE Section or Chapter meeting to experience first-hand the professional benefits of IEEE membership.
- Follow up a discussion about IEEE membership with a note emphasizing membership benefits; be sure to provide an application.
- Have IEEE membership applications available for prospective recruits.
- Keep issues of IEEE Spectrum and Society publications on display to attract the eye of non-member employees.
- Publish an article in your company newsletter telling how the IEEE helped you in your career or helped the company.
- Post announcements of IEEE meetings and IEEE conferences, seminars and educational programs on company bulletin boards.
- Welcome your company's newly hired technical employees and use the opportunity to discuss the benefits of IEEE membership.
- When discussing membership with a prospect, listen for clues as to what they look for in a professional society. Stress those member benefits that meet their needs!
- Suggest they check out the IEEE Web site and apply online. Whether your recruit applies using a hard copy or online, make sure they fill in your name in the recruiter box with your membership number to be to become eligible for this program.
- Coordinate an IEEE event at your place of employment.

For more information about MGM, contact Dyana Barnosky at IEEE Membership Development.

NJ Section PACE:

Scenic Hudson River Boat Ride

Come join us for a social gathering and joint meeting with the IEEE Mid-Hudson Section, the IEEE/PACE Section of Northern New Jersey, the USMA and SUNY New Paltz student branches. Enjoy a scenic ride on the Hudson River as we tour the area between the Bear Mountain Bridge and Newburgh.

This notice is for North Jersey Section members and one guest. Children must be 10 or over.

Reservations required. Lunch will be served. There is no cost for this event

Time: Saturday, October 22, 2005, 12:00-2:00 PM (includes lunch). Boarding starts at 11:30 AM.
Place: Depart from South Dock, United States Military Academy, West Point.
Dress: Business Casual, appropriate for weather conditions (the top deck is open to the weather). **Space is limited! RSVP to lisa.shay@ieee.org by Oct. 14**.
Directions: To West Point, http://www.usma.edu/visiting.asp.

Notice to NJ Section Engineers

Paul Ward, a member of the NJ Section IEEE USA and Co-chair of its PACE committee, is looking for (a donation of) electronic test equipment that can be used for teaching electronics and electricity to students with learning disabilities (LD) at the Craig Upper School in Lincoln Park, NJ. This school is a private institution that receives its operating funds from either the parents of the students or some governmental subsidy.

The Craig Upper School is a school dedicated to teaching LD students at the high school level, preparing them to continue on to college or to enter the work force. It teaches a full curriculum, i.e., English, History, Mathematics, Science, and special courses directed at LD students. The staff is limited to approximately fifteen (15) including office, nurse, and guidance with the student population that ranges in the upper fifties (50) which is expected to grow. This ratio of student-to-staff helps to keep class size small and manageable, a class rarely exceeds seven (7).

Paul is trying to accumulate a couple of oscilloscopes, multimeters (analog or digital), oscillators, and function generators, so that a Basic EE course could be put together for a technical course and added to the present academic curriculum. The course would help the student to connect what he or she learned in Mathematics and Science into a practical experience.

The equipment does not have to be in perfect condition, just safe and usable.

If you can donate such equipment, please send it to the following address:

Craig Upper School
Attn: Paul Ward
200 Comely Road
Lincoln Park, NJ 07035

Alternatively, contact Paul Ward at (973) 790-1625 or PWard1130@aol.com. He will pick it up if needed.

Leader Debunks Engineering "Shortage" Myth

In an 18 August 2005 letter to the editor of "The Washington Post," IEEE-USA President Gerard A. Alphonse criticized a headline in the same day's "Post" column, "Behind the Shortfall of U.S. Scientists." According to Dr. Alphonse, "Just because China, India and other nations are graduating large and increasing numbers of scientists and engineers does not mean that there is a shortage of science and engineering professionals in the United States."

The IEEE-USA leader added: "For a true picture, look at the rising unemployment for U.S. scientists and engineers in recent years and the percentage of individuals trained in science and engineering who are working in other fields." He concluded: "Increasingly, we see compensation that is lagging behind other employment categories, job insecurity, rapid obsolescence due to technological change, and the looming threat of offshoring."

For information on media coverage of IEEE-USA's positions, products and services, go to "IEEE-USA in the News" at http://www.ieeeusa.org/communications/inthenews/default.asp. Or contact IEEE-USA Senior PR Coordinator Chris McManes at (202) 785-0017, ext. 8356, or c.mcmanes@ieee.org.

IEEE Mentoring Program Pilot Invitation

IEEE is offering its members the opportunity to participate in an online program designed to match IEEE members for the purpose of facilitating a mentoring partnership. We value your involvement in IEEE activities and ask that you use your career and life experiences to help other IEEE members in their professional development through a mentoring partnership.

IEEE is partnering with The Training Connection, a vendor that has developed a web-based mentoring program to facilitate the matching process. Participation in the Region 1 (Northeast U.S.) pilot program is voluntary and has now been extended to include IEEE members residing in Regions 2 and 3 (Eastern and Southeastern U.S.) above the grade of Student Member. If you are interested in participating, or would be interested in additional information on the program, go to http://www.ieee.org/mentoring. This IEEE site also provides the information necessary for access to enter the program's web site by offering the Group ID.

We hope that you have the interest and time to participate! If you have any questions, please contact Cathy Downer, IEEE Mentoring Program Coordinator at mailto:c.downer@ieee.org.

NEWS from IEEE-USA:

Extreme Challenges Await Electrical Engineers' Efforts to Restore Power on Gulf Coast

Washington (2 September 2005) - Electrical engineers will face extreme challenges in their role to restore power to the Gulf Coast region ravaged by Hurricane Katrina, according to a September article in IEEE-USA Today's Engineer.

"The challenge is to figure out what pieces [of the regional electric grid] are left, put them back together in a sequence that restores as much power as possible, as fast as possible, and that remains stable in operation as conditions change and load is added back to the system," said Harold Adams, a power engineer with Dominion Resources Services in Glen Allen, Va. "The challenge to localized service is similar, but there is a more detailed focus on the particular restoration priorities for local customers and government.

"In all of these cases, manpower and equipment logistics often present a major challenge."

IEEE-USA Today's Engineer conducted a question-and-answer session with Adams and Jack Casazza, two electrical engineers experienced in storm damage and electric system restoration following natural disasters. Both are members of the IEEE Power Engineering Society and IEEE-USA Energy Policy Committee. While engineers can design transmission and distribution systems that help protect against major power loss in severe weather, nothing can be done to guarantee electricity to public facilities, homes and businesses.

"You really cannot storm-proof the system completely," Casazza said. "No matter what you do, the electric power system is going to be subject to interruptions – major interruptions."

To read "Katrina Poses Extreme Challenges for Power Engineers", go to www.todaysengineer.org. To subscribe to Today's Engineer, IEEE members can go to http://ewh.ieee.org/enotice/options.php?LN=IEEEUSA. Non-members can visit http://www.todaysengineer.org/emailupdates/index.html

IEEE-USA in Action:

IEEE-USA-Supported "Federal Patient Safety Act" Signed into Law

On 29 July, President Bush signed into law "The Patient Safety and Quality Improvement Act of 2005" that IEEE-USA supported. The law directs the federal government to establish a database network to hold data on medical errors voluntarily reported by health care providers and patient safety organizations. Ensuring anonymity by removing patient and provider identity information, patient safety advocates hope to spur the reporting of medical errors, and encourage a candid error analysis that will lead to developing effective solutions to avoid future mistakes.

IEEE-USA President Gerard Alphonse urged Congress to pass the bill in a 24 June letter to Senate Majority Leader Bill Frist (R-Tenn.). IEEE-USA has officially supported improving patient safety by reducing errors since issuing its June 2002 position statement, "Improving the Healthcare System Through The Use of Information Technologies."

You can view the position statement at: http://www.ieeeusa.org/policy/positions/healthcareinfotech.html.

The letter to Sen. Frist is available at http://www.ieeeusa.org/policy/policy/2005/062405.asp.

News from the IEEE Foundation

IEEE Presidents' Scholarship Fund Established – The IEEE Foundation is proud to announce the establishment of the IEEE Presidents' Scholarship Fund to accept contributions to support the largest pre-university scholarship offered by the IEEE. The IEEE Presidents' Scholarship recognizes a deserving student for an outstanding project in electrical engineering, information technology or other IEEE field of interest. The scholarship is presented during the annual Intel International Science and Engineering Fair (ISEF). Administered by IEEE Educational Activities, with assistance from IEEE volunteers who serve as the judges during the ISEF, this scholarship includes US $10,000 payable over four years, complimentary IEEE Student and Student Society memberships, a framed certificate, and an engraved plaque.

Contributions made to the IEEE Presidents' Scholarship will provide the financial resources students need to pursue their engineering dreams. Checks may be made payable to the IEEE Foundation – IEEE Presidents' Scholarship Fund and mailed to the IEEE Foundation, 445 Hoes Lane, Piscataway, NJ 08854, USA. Credit card gifts may be made by sending an email to supportieee@ieee.org. To discuss alternative giving methods, please call the IEEE Development Office at (732) 562-3860.

IEEE-USA Advocates Protection of Personally Identifiable Health Information, and Development of Technology-Based National Health Information Network

Washington (18 July 2005) - IEEE-USA is concerned that the Department of Homeland Security's (DHS) authority to access and analyze personal information could lead to privacy breaches of one's personally identifiable health information.

"We believe DHS authority to access and disseminate personally identifiable health data should be restricted unless adequate controls are put in place to ensure the security and confidentiality of that data," according a position adopted 17 June by the IEEE-USA Board of Directors.

IEEE-USA recommends, among other things, that DHS implement procedures to ensure that personally identifiable health information is not inadvertently used to discriminate against someone in employment and insurance; and to establish accountability and significant penalties for the misuse or abuse of such information.

In a related position, IEEE-USA advocates establishing a National Health Information Network (NHIN) to take advantage of cutting-edge networking technologies, as well as provide secure and reliable access to, and sharing of, health information. The NHIN should not compromise the security and privacy of one's personal health records, according to IEEE-USA.

The organization also stated that NHIN could reduce medical errors resulting from insufficient information regarding a patient's history, prescribed medications and current condition; provide fast access to health data in an emergency situation; and curb rising healthcare costs by eliminating much of the paper-based processing of patient records and insurance claims.

These positions - "Homeland Security Operations and Use of Personally Identifiable Health Information" and "National Health Information Network, With Emphasis on Security and Privacy Issues" - were developed by the IEEE-USA Medical Technology Policy Committee. They are available at http://www.ieeeusa.org/policy/positions/index.html#mtp.

IEEE-USA is an organizational unit of the IEEE. It was created in 1973 to advance the public good and promote the careers and public policy interests of the more than 220,000 technology professionals who are U.S. members of the IEEE. The IEEE is the world's largest technical professional society. For more information, go to http://www.ieeeusa.org.

IEEE-USA IN ACTION:

Congressman Rohrabacher Receives IEEE-USA Award from IEEE-USA President

Washington (12 July 2005) - IEEE-USA President Gerard A. Alphonse presented Rep. Dana Rohrabacher (R-Calif.) with the IEEE-USA Distinguished Public Service Award in the congressman's office today.

Rohrabacher, former chairman of the House Science Committee's Subcommittee on Space and Aeronautics, was honored "for long-term support of IEEE-USA's Congressional Fellowship program and leadership on federal policy issues of concern to the engineering community."

Rohrabacher thanked Alphonse for the award and said "we need more engineers and scientists to help shape national policy."

Steve Watkins served as an IEEE-USA Congressional Fellow last year in Rohrabacher's office, and Randall Brouwer holds the position in 2005. Both attended Tuesday's event. IEEE-USA's distinguished awards are administered under its Awards and Recognition Committee and approved by the IEEE-USA Board of Directors. For more information, visit www.ieeeusa.org/volunteers/committees/awards, or contact Sandra Kim at sandra.kim@ieee.org..

IEEE-USA in Action:

IEEE-USA Helps to Shape Monthly TV News Spots on IEEE Technologies

Washington (13 July 2005) - In collaboration with the American Institute of Physics (AIP), IEEE-USA is helping to shape television news spots about IEEE technologies - distributed to the top 108 U.S. TV markets. AIP's "Discoveries and Breakthroughs" news service, which each month delivers twelve 90-second broadcasts in English and Spanish to subscribing stations, has a potential reach of more than 80 million households.

"Discoveries" provides a realistic image of how professionals in science, technology, engineering and math contribute to a better quality of life. The AIP service helps to improve technological literacy and to promote the public understanding of engineering and science.

IEEE-USA involvement this year has ensured that more engineering stories are included in news broadcasts, with assistance from "IEEE Spectrum," IEEE Technical Activities and IEEE Corporate Communications staff. In June, news feeds encompassed such IEEE-related technologies as a robotic arm for stroke victims, a mouse adapter for tremors and an oxyride battery.

For sample "Discoveries" video spots, go to http://www.ivanhoe.com/science/. The website includes background on each news segment as well as a list of local TV stations on which the spots are aired. Limited copies of CDs of sample segments are available for use by U.S. IEEE volunteers in middle and high schools, and can be obtained through the IEEE-USA contact below.

Contact: Pender M. McCarter, APR, Fellow PRSA
Director of Communications & Public Relations
Phone: (202) 785-0017, ext. 8353
E-mail: p.mccarter@ieee.org
Web: http://www.ieeeusa.org

THE INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS, INC.

IEEE NORTH JERSEY SECTION

MTT-Society and AP-Society Joint Chapter

PRESENT

20TH ANNUAL SYMPOSIUM AND MINI-SHOW

Thursday, October 6, 2005
Prime Hotel & Suites (formerly Radisson Hotel Fairfield)
690 Route 46 East, Fairfield NJ (973) 227-9200

The conference presents a series of 12 lectures describing the state of the art in Microwave, RF, Optical and Wireless, technologies by leaders in their respective fields.

Mini-Show Featuring Latest Products (10:00 AM TO 4:30 PM)
&
Presentation Schedule (8:50AM to 4:30PM)

Time	Topic	Speakers	Title	Affiliation
8:50	Opening Remarks	George Kannell	Tech. Chair IEEE MTT/AP NJ Sect.	Lucent Technologies
9:00	Model-based Software Defined Radio Hardware Implementation on a Hybrid DSP&FPGA platform	Martin Turgeon	Application Engineer	Lyrtech
9:30	Simulation Techniques for RF Circuits in Wireless Communication Systems	Robert Zeng	Principal RF Communications Engineer	The Mathworks
10:00	Refreshments and Mini-Show			
10:30	Signal Processing Primer for Radio Design	Sean Gallagher	Application Engineer	Xilinx
11:00	Using Advanced Software Tools for Wireless LAN with System on Chip and System in Package Technologies	Bill McGinn	Application Engineer	Ansoft Corportation
11:30	Performance of Cellular Mobile Radio Downlinks in Fading Channels with Beamforming vs. Transmit Diversity	Barnet Schmidt	Project Engineer	BAE Systems - CNIR
12:00	Lunch			
1:00	Highly Directive W-band Antennas for Automotive Radar and Vehicle to Vehicle Communications	Carsten Metz	Member of Technical Staff	Lucent Technologies
1:30	Miniature Voltage Tuned Filter Design	Har Dayal	Senior Member of Technical Staff	BAE Systems - CNIR
2:00	RF Power Combining Challenges	L. Hung, M. Hodgetts	Member of Technical Staff Technical Manager	Lucent Technologies
2:30	Refreshments and Mini-Show			
3:00	Printed Circuit Filter Design to Optimize MIC Module Performance	Sever Anghel	Senior Staff Engineer	Miteq
3:30	Accurate Modeling of Arbitrary Passive Structures	M. Upmaka, PH.D.	Application Engineer	Agilent EEsof EDA
4:00	Novel Microwave Component Miniaturization Techniques	C. Gupta, PH.D.	Vice President of Engineering	Aeroflex-KDI
4:30	Closing remarks	Kirit Dixit	Chair IEEE MTT/APs NJ Section	Microcom Sales

Registration is on-site. For Further Information Contact: Kirit Dixit (201-669-7599), Har Dayal (973-633-4618), Willie Schmidt (973-492-0371) or George Kannell (973-386-4170).

ALL ARE WELCOME (IEEE Membership not required). REGISTRATION IS ON-SITE
THERE IS NO CHARGE TO ATTEND THE SYMPOSIUM OR SHOW.
FREE BREAKFAST / LUNCH INCLUDED FOR ALL.

MTT/AP Chapter:		Mini-show:	
Chairman Vice Chair 1 Vice Chair 2	Kirit Dixit Har Dayal Willie Schmidt	General Chair: General Vice Chair: Technical Program Chair:	Kirit Dixit Har Dayal George Kannell Ken Oexle Russell Pepe

NJ Power Engineering Society/Industry Applications Society

Advanced Concepts in Transformer Protection Technical Seminar

The PES and IAS Chapters will sponsor a one-day seminar covering Advanced Concepts in Transformer Protection. The session will be held on Friday, October 28 at the PSE&G Training Center, 234 Pierson Ave, Edison, NJ.

Topics (A more detailed syllabus is available at http://web.njit.edu/~ieeenj/NEWSLETTER.html)

Protection of Power Transformers

1. Modes of Transformer Failure
2. Types of Protection
3. Mechanical
4. Electrical
5. Unique factors for differential electrical protection
6. Special concerns
7. Back up protection

Setting a Relay – Overcoming Engineering Challenges

1. Configure relay to "the outside world"
2. Element enabling
3. Element setting
4. Setting groups
5. Purposes and configuration
6. Input / Output Matrixing (Marshalling)
7. Programmable logic
8. Set point review & printout
9. Input / Output review & printout
10. File saving & recall (file management)

Commissioning of Transformer Differential Protection Systems

1. Phasing Issues
2. Polarity Issues
3. Injection Testing
4. Load Testing
5. Tools for Commissioning

About the Instructor

The instructor will be Chuck Mozina, Consulting Engineer with Beckwith Electric. Chuck Mozina is a Contract Consultant, Protection and Protection Systems for Beckwith Electric Company, Inc., specializing in power plant and generator protection. His consulting practice involves projects relating to protective relay applications, protection system design and coordination.

Chuck is an active 20-year member of the IEEE Power System Relaying Committee (PSRC) and is the past chairman of the Rotating Machinery Subcommittee. He is active in the IEEE IAS I&CPS committee, which addresses industrial protection system. He is the past U.S. representative to the CIGRE Study Committee 34 on System Protection and has chaired a CIGRE working group on generator protection. He also chaired the IEEE task force that produced the tutorial "The Protection of Synchronous Generators," which won the PES's 1995 Outstanding Working Group Award. Chuck is the 1993 recipient of the PSRC's Career Service Award.

Chuck has a Bachelor of Science in Electrical Engineering from Purdue University and has authored a number of papers and magazine articles on protective relaying. He has over 25 years of experience as a protective engineer at Centerior Energy, a major investor-owned utility in Cleveland, Ohio where he was the Manager of the System Protection Section. For the past ten years, he was Application Manager for Protection Products with Beckwith Electric Company. He is also a former instructor in the Graduate School of Electrical Engineering at Cleveland State University. He is a registered Professional Engineer in the state of Ohio.

If desired, IEEE Continuing Education Units will be offered for this course. A small fee of $15 will be required for processing. A total of 0.4 CEUs will be offered. Please indicate if desired below.

The registration fee for this seminar prior to October 14th will be $150 for non-IEEE members, $100 for IEEE Members, $75 for GOLD Graduates (last 1-10 years) and $25 for students with valid ID. The fee will be waived for IEEE Life Member Grades with verification at the seminar. Registrations after October 14th must include an additional late fee of $25. The seminar fee includes lunch, refreshments, and handouts. Non-members joining IEEE within 30 days of the seminar will be rebated 50% of the IEEE registration charge.

Time: 9:00 AM to 1:00 PM followed by lunch, Friday, October 28, 2005.
Place: PSE&G Training Center, 234 Pierson Ave, Edison NJ.
Directions: www.pseg.com/customer/business/small/facility/edison_directions.jsp
Information: Ronald W. Quade, PE, (732) 205-2614 or rwquade@ieee.org.

Registration: Beckwith Transformer Protection, 10/28/2005

Register via US mail to:
Ronald W. Quade, PE
Eaton Electrical
379 Thornall St, 8th Floor
Edison, NJ 08837

Name _____

Address _____

Phone_____ Email _____

IEEE #_____ Student @_____ Non IEEE_____ Life Member_____

Continuing Education Units: _____Yes $15 _____No
If CEUs are chosen, please include a $15 processing fee
Payment Enclosed $_____ Add $25 late registration after October 14th
Make checks payable to North Jersey Section IEEE

NJ Power Engineering Society/Industry Applications Society

Upgrade of Generator Protection to Comply With IEEE Guides Technical Seminar

The PES and IAS Chapters will sponsor a one-day seminar covering the Upgrade of Generator Protection to Comply with IEEE Guides. The session will be held on Friday, November 18 at the PSE&G Training Center, 234 Pierson Ave, Edison, NJ.

Topics (A more detailed syllabus is available at http://web.njit.edu/~ieeenj/NEWSLETTER.html)

1. Quality Issues and Standards
2. Latest Generator Protection Developments
3. Review of Grounding Techniques
4. Types of Generator Connections
5. Improved Sensitivity
6. Improved Security
7. Abnormal Frequency
8. Protections Against External Device Failure
9. Operating, Commissioning and Analysis Tools
10. Communications

About the Instructor

The instructor will be Chuck Mozina, Consulting Engineer with Beckwith Electric. Chuck Mozina is a Contract Consultant, Protection and Protection Systems for Beckwith Electric Company, Inc., specializing in power plant and generator protection. His consulting practice involves projects relating to protective relay applications, protection system design and coordination.

Chuck is an active 20-year member of the IEEE Power System Relaying Committee (PSRC) and is the past chairman of the Rotating Machinery Subcommittee. He is active in the IEEE IAS I&CPS committee, which addresses industrial protection system. He is the past U.S. representative to the CIGRE Study Committee 34 on System Protection and has chaired a CIGRE working group on generator protection. He also chaired the IEEE task force that produced the tutorial "The Protection of Synchronous Generators," which won the PES's 1995 Outstanding Working Group Award. Chuck is the 1993 recipient of the PSRC's Career Service Award.

Chuck has a Bachelor of Science in Electrical Engineering from Purdue University and has authored a number of papers and magazine articles on protective relaying. He has over 25 years of experience as a protective engineer at Centerior Energy, a major investor-owned utility in Cleveland, Ohio where he was the Manager of the System Protection Section. For the past ten years, he was Application Manager for Protection Products with Beckwith Electric Company. He is also a former instructor in the Graduate School of Electrical Engineering at Cleveland State University. He is a registered Professional Engineer in the state of Ohio.

If desired, IEEE Continuing Education Units will be offered for this course. A small fee of $15 will be required for processing. A total of 0.4 CEUs will be offered. Please indicate if desired below.

The registration fee for this seminar prior to November 4th will be $150 for non-IEEE members, $100 for IEEE Members, $75 for GOLD Graduates (last 1-10 years) and $25 for students with valid ID. The fee will be waived for IEEE Life Member Grades with verification at the seminar. Registrations after November 4th must include an additional late fee of $25. The seminar fee includes lunch, refreshments, and handouts. Non-members joining IEEE within 30 days of the seminar will be rebated 50% of the IEEE registration charge.

Time: 9:00 AM to 1:00 PM followed by lunch, Friday, November 18, 2005.
Place: PSE&G Training Center, 234 Pierson Ave, Edison NJ.
Directions: www.pseg.com/customer/business/small/facility/edison_directions.jsp
Information: Ronald W. Quade, PE, (732) 205-2614 or rwquade@ieee.org.

Registration: Beckwith Generator Protection, 11/18/2005

Register via US mail to: Ronald W. Quade, PE
Eaton Electrical
379 Thornall St, 8th Floor
Edison, NJ 08837

Name _____

Address _____

Phone_____ Email _____

IEEE #_____ Student @_____ Non IEEE_____ Life Member_____

Continuing Education Units: _____Yes $15 _____No
If CEUs are chosen, please include a $15 processing fee
Payment Enclosed $_____ Add $25 late registration after November 4th
Make checks payable to North Jersey Section IEEE

IEEE North Jersey Section Course
Oracle SQL Programming 101

Seminar Objective
This 4 hour course will teach you how to work with data within an Oracle Database using SQL and SQL*Plus.

Seminar Design Outline
- Principal features of the Oracle database
- Query and manipulate an Oracle database using Structured Query Language
- Code sophisticated query operations such as join, grouping, case and more
- Update data with insert, update, delete, and merge operations
- Create database tables with the major data types such as NUMBER, VARCHAR2
- Create B-Tree indexes to improve the performance of query operations
- Query Oracle data dictionary tables such as USER_TABLES
- Utilize transaction control statements such as Commit, Rollback and Savepoint
- Create database objects such as tables, views, indexes, synonyms and sequences
- Grant and Revoke object privileges
- Utilize SQL*Plus to query, update and create database objects
- Use SQL*Plus scripting and report generation features

About the Speaker
The speaker is scheduled to be Raj Agarwal, DBA.

Early registration is recommended. Phone reservations will NOT be accepted. No reservations will be accepted after October 7, 2005.

WHERE: Radisson Hotel - Saddle Brook, 129 Pehle Ave, Saddle Brook, NJ, (201) 845-7800.
(Checks **should not** be mailed to this address)
WHEN: 9:00 AM to 1:00PM, Friday, October 21, 2005 (breakfast included).
COST: IEEE (& affiliate) members $75; Non-IEEE members $95.
CONTACT: Bhanu Chivukula -email b.chivukula@computer.org

REGISTRATION: Oracle SQL Programming 101

Please send the checks in the name of **North Jersey Section IEEE** with filled in registrations to:
Bhanu Chivukula, 19 Prestwick Way, Edison, NJ 08820. Please email inquiries to b.chivukula@computer.org

Name: / Mr. / Mrs. / Miss / Ms. / _____ _____

☐ Non-member ⇦email address⇨

☐ IEEE Member Member #:_____ Member of _____ technical society

Employer:_____

Employer Address:_____

_____

Home Address:_____

_____

Business (day) telephone #:_____ Home telephone #:_____

Please enclose required fee payable to: **North Jersey Section IEEE**
Registration status will be mailed after October 7, 2005. Phone inquiries concerning registration will NOT be honored. In general, the effective date of the application corresponds to the date when BOTH a fully completed application/registration and payment are received.

☐ Tuition receipt will be mailed only if this box is checked Signature:_____

North Jersey Section

Field Programmable Gate Array Seminar

Seminar overview

FPGA stands for Field Programmable Gate Array. FPGAs are becoming the de facto standard in digital design. They are found in control, DSP and general purpose computing. They offer designers the ability to go to layout before committing to the full design.

This seminar will introduce FPGAs and provide a road map on how to learn and become productive in the use of FPGAs. Development will be used by the instructor to execute labs.

Seminar Design Outline

- **Introduction to FPGA**
- **FPGA architecture**
- **Xilinx Design Flow**
  - **Architecture Wizard and Pace**
  - **Reading Reports**
  - **Global Timing Constraints**
- **Synthesis Techniques**
  - **XILINX CORE Generator**
  - **Floorplanner: Effective Layout**
- **FPGA Editor: Viewing and Editing a Routed Design**
  - **HDL Bencher**
- **FPGA Design Techniques**
- **Synchronous Design Techniques**

About the Speaker

Mr. Chibane Cherif, is a practicing engineer, speaker and lecturer in telecommunications, wireless communication and Voice Over IP technology, business and market issues.

Pre-requisite

Basic Digital design

Time: TBA, November 2005.
Place: TBA – see http://web.njit.edu/~ieeenj/ and upcoming Newsletters for updates.
Information: see http://web.njit.edu/~ieeenj/ and upcoming Newsletters for updates.

IEEE North Jersey Section Course
Project Management

Tuesday Evenings, October 11, 2005 through November 29, 2005
Eight weekly classes (October 11, 18, 25, November 1, 8, 15, 22, 29, 2005)
NJ International Bulk Mail Center, Jersey City, NJ (Checks should not be mailed to this address)

The North Jersey Section IEEE is offering an evening course entitled "Project Management". Dice.com lists 2500+ Project related jobs in the New York tri-state area daily! This course will help you to break down a master project into manageable tasks, pinpoint possible solutions, and provide information to keep the project under control. Using Microsoft Project 2003 software, you will learn to accomplish various project plans. In addition, it will greatly enhance your business, communications and interpersonal skills.

The IEEE certificate of completion will be given to you when you complete the course. You may wish to take two Certification exams, one in Project Management administered by Project Management Institute and the other in IT Project+ by CompTIA Inc.

Instructor: Donald Hsu, PhD, has been a corporate manager for 11 years and is an experienced trainer. Since 1999, he has trained 270+ people in IT Project+, MS Project 2003, and Project Management courses in seven organizations.

Bhanu Chivukula, PMP, will also share his PMP (PMI) examination preparation strategies and experiences including the details of the new PMP examination (starting September 2005 based on PMBOK 2004 version).

TOPICS

1. Explain the need for a project manager
2. Define SOW, PERT, GANTT, CPM, and Scope of the project
3. Identify the team members, resources and plan for the strategy
4. Calculate schedule, budget variances, and monitor project progress
5. Manage changes, estimates, and communications
6. Set a baseline, import tasks from MS Excel, export Project files to MS Word
7. Create and modify custom reports, templates and combination views
8. Share resources and create a master plan loaded to Project Server
9. Approve updates and conclude a project plan
10. Analyze Global E-Commerce and present student Projects

Class size will be limited to a maximum of 25 with a minimum of 15. Early registration is recommended. Phone reservations will NOT be accepted. Reservations accepted after October 2, 2005 will require a late fee of $25. No reservations will be accepted after October 6, 2005.

WHERE: NJ International Bulk Mail Center, Jersey City, NJ. (Checks **should not** be mailed to this address)
WHEN: 8 Tuesdays, October 11, 18, 25, November 1, 8, 15, 22, 29, 2005, 6:30-9:00 PM.
COST: IEEE (& affiliate) members $375; Non-IEEE members $475.
CONTACT: Bhanu Chivukula (b.chivukula@computer.org)

REGISTRATION: Project Management

Please send the registration form with payment to Bhanu Chivukula, Chair, Education Committee, IEEE NNJ, 19 Prestwick Way, Edison, NJ 08820 **(Checks payable to "North Jersey Section IEEE" with registration form should be mailed to this address).**

Name: / Mr. / Mrs. / Miss / Ms. / _____ _____

☐ Non-member ⇦email address⇨

☐ IEEE Member Member #:_____ Member of _____ technical society

Employer:_____

Employer Address:_____

_____

Home Address:_____

_____

Business (day) telephone #:_____ Home telephone #:_____

Please enclose required fee payable to: **North Jersey Section IEEE**
Registration status will be mailed after October 6, 2005. Phone inquiries concerning registration will NOT be honored. In general, the effective date of the application corresponds to the date when BOTH a fully completed application/registration and payment are received.

☐ Tuition receipt will be mailed only if this box is checked Signature:_____