

The



IEEE Newsletter

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

NORTH JERSEY SECTION CELEBRATES 50 YEARS!

North Jersey Section Turns 50!

The IEEE Regional Activities Board is recognizing the IEEE North Jersey Section for outstanding longevity in promoting the engineering process of creating, developing, integrating, sharing, and applying knowledge about electro and information technologies and sciences for the benefit of humanity and the profession. The IEEE North Jersey Section was established on 05 May 1954 and will celebrate its 50th Anniversary in 2004. An anniversary award banner has been prepared for the Section that carries the following citation:

*IEEE North Jersey
"Service to the Profession for 50 Years."*

Roger Sullivan, 2004 Region 1 Director, will be contacted by Regional Activities Dept. staff to coordinate an appropriate event to present this banner award to your Section. The award banner will be presented at an occasion determined by your Section and your Regional Director.

On behalf of the entire IEEE Regional Activities Board, please convey our congratulations to the members of the IEEE North Jersey Section for having achieved this honor.

Sincerely,

Marc T. Apter
2004 Chair - IEEE Regional Activities Board

NJ Computer Chapter:

Inside Internet E-Mail

On Tuesday, March 23rd, 2004, the IEEE North Jersey Section Computer Chapter will host a presentation titled "Inside Internet E-Mail" by Ed Levinson.

About the Talk

This talk uses the Internet's first killer application, email, and its protocols to explore both the technology and the organization that created it. You'll see how the email protocols are built up from very simple protocols to yield extraordinary versatility and adaptability. The talk also illuminates the structure of the Internet Engineering Task Force, under whose auspices the protocols are developed and approved. The IETF, a volunteer organization, provides a model for co-operative distributed engineering. The success of the Internet speaks volumes about the IETF and the talk will provide insights into its workings.

About the Speaker

Dr. Edward Levinson is the author of the email protocols that make it possible to send web pages via email. He has managed software development teams and served the US Army as a consultant for document transfer and strategic

planning. Dr. Levinson started his career at Bell Laboratories and has also worked in small and mid-sized companies. He studied Electrical Engineering at Washington University in St. Louis and received his doctorate from the University of Pennsylvania.

Currently, Ed Levinson coaches technology professionals and business owners.

All Welcome!

You do not have to be a member of the IEEE to attend. Bring your friends and network during the free pre-meeting buffet starting at 6:00 PM.

Time: 7:00 PM, Tuesday, March 23, 2004. Pre-meeting buffet starting at 6:00 PM.

Place: Lucent Technologies, 67 Whippany Rd, Room 3C-222, Whippany, NJ.

Information: Seth Jakel (973) 731 1902 (sgjakel@comcast.net), Vivek Shaiva (908) 229-6125 (vshaiva@computer.org), or Arthur Greenburg (973) 386-6673 (ahg1@lucent.com). Registration in advance is recommended with full name, affiliation and nationality so that an admission badge will be available for you on arrival.

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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.

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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 Dr. Sanghoon Shin at (973) 492-1207 Ext. 22, s.shin@iee.org.

NJ Signal Processing Chapter: Image Steganalysis: Detecting Covert Communications through Images

On March 9, 2004, the IEEE North Jersey Section Signal Processing Society Chapter along with NJIT will host a presentation on "Image Steganalysis: Detecting Covert Communications through Images." The speaker will be Professor Nasir Memon.

About the Talk

"Steganography" refers to the science of "invisible" communication. Unlike cryptography, where the goal is to secure communications from an eavesdropper, steganographic techniques strive to hide the very presence of the message itself from an observer. Although steganography is an ancient subject, given the proliferation of digital images, and given the high degree of redundancy present in a digital representation of an image (despite compression), there has been an increased interest in using digital images as cover-objects for the purpose of steganography.

In this context, "Steganalysis" refers to the body of techniques that aid in distinguishing between cover-objects and stego-objects. The development of techniques for image steganography and the wide-spread availability of tools for the same have led to an increased interest in steganalysis techniques for image data. The last two years, for example, have seen many new and powerful steganalysis techniques reported in the literature. In this talk, we will present a broad overview of recent developments in steganalysis. We will highlight the progress that has been made and the questions that still need better answers.

About the Speaker

Nasir Memon is an Associate Professor in the Computer Science Department at Polytechnic University, New York. Professor Memon's research interests include data compression, computer and network security and multimedia communication, computing and security. He has published more than 150 articles in journals and conference proceedings and holds two patents in image compression. He has been the principal investigator on several funded research projects sponsored by NSF, AFOSR, AFRL, HP, Intel, Panasonic and Mitsubishi. He was a visiting faculty at Hewlett-Packard Research Labs during the academic year 1997-98. He has won several awards including the NSF CAREER award in 1997 and the Jacobs Excellence in Education award in 2002.

He was an associate editor for IEEE

Transactions on Image Processing (98-01), and is currently serving in the same position for the ACM Multimedia Systems Journal and the Journal of Electronic Imaging. He is also serving as a guest editor for the IEEE Transactions on Signal Processing special issue on Multimedia security, for the Signal Processing Journal special issue on Security of Data Hiding Technologies and for the European Journal on Applied Signal Processing special issue on Multimedia Security and Rights Management.

Time: 4:45 PM (refreshments and pizza available at 4:30 PM), Tuesday, March 9, 2004.

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

Information: Dr. Yun Shi (973) 596-3501 (shi@njit.edu), Dr. Alfredo Tan (201) 692-2347 (tan@mailbox.fdu.edu), Dr. Hong Man (201) 216-5038 (hman@stevens-tech.edu).



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BSEE, MSEE (system architecture and applications software). Over 10 years of patent prosecution experience with NYC intellectual property and high-tech law firms. Former in-house senior patent counsel with a multinational corporation. Patent applications, opinions, counseling, litigation support. Personal attention, high quality, reasonable fees. References upon request. For more information please visit my website.

IEEE North Jersey Section Activities

March 2004

Mar. 3 – “NJ Section Executive Committee Meeting” - 7:00 PM, ITT, 100 Kingsland Rd, Clifton, NJ. Dr. Sanghoon Shin at (973) 492-1207 Ext. 22 or s.shin@ieee.org.

Mar. 9 – “Image Steganalysis: Detecting Covert Communications through Images” - NJ Signal Processing Chapter, 4:45 PM (pizza and refreshments at 4:30 PM), NJIT, 202 ECE Center, Newark, NJ. Dr. Yun Shi (973) 596-3501 (shi@njit.edu), Dr. Alfredo Tan (201) 692-2347 (tan@mailbox.fdu.edu), Dr. Hong Man (201) 216-5038 (hman@stevens-tech.edu).

Mar. 10 – “An Overview of CMOS Technology for RF IC Applications” - EDS/C&S Chapters, 7:00 PM (buffet at 6:15 PM), NJIT, 202 ECE Center, Newark, NJ. Dr. Richard Snyder (973) 492-1207 (RS Microwave), Dr. Durga Misra (973) 596-5739 (dmisra@njit.edu) or Dr. Edip Niver (973) 596-3542 (NJIT).

Mar. 10 – “PACE, GOLD, Membership; Engineers Meet: Trends Affecting Engineering Professionals” - NJ PACE, 6:15 – 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).

Mar. 18 – “NJ Energy Auctions” - NJ IAS/PES Chapters, 7:00PM, Eaton/Cutler Hammer, 690 Rahway Ave, Union, NJ. Ron Quade (212) 833-0268.

Mar. 23 – “Inside Internet E-Mail” - NJ Computer Chapter, 7:00 PM, Lucent Technologies, 67 Whippany Rd, Room 3C-222, Whippany, NJ. Seth Jakel (973) 731 1902 (sgjakel@comcast.net), Vivek Shaiva (908) 229-6125 (vshaiva@computer.org), or Arthur Greenburg (973) 386-6673 (ahg1@lucent.com).

Mar. 23 – “Wireless LAN Security: Standards, Business Plans and Deployment Issues” – 8:00 AM-5:00 PM, Meeting Rooms 108/109 Magill Commons, Monmouth University. Dr. Amruthur Narasimhan (732) 957 0850 (anarasimhan@ieee.org).

Mar. 25 – “Small Power Transformer Technical Seminar” - NJ IAS/PES Chapters, 9:00 AM to 3:00 PM, JCP&L, Punchbowl Room, 300 Madison Avenue, Morristown, NJ. Ronald W. Quade, PE, (212) 833-0268 or rwquade@ieee.org.

Mar. 25 – “How an Engineer Ends Up In Court: The Expert Witness” - 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.

Mar. 25 – “Optical Technologies in Router Design” - NJ Communications Chapter, 6:15 PM (refreshments at 6:00 PM), NJIT, 202 ECE Center, Newark, NJ. Dr. Nirwan Ansari (973) 596-3670 (nirwan.ansari@njit.edu) or check <http://web.njit.edu/~ieeenj> for the latest updates.

Mar. 25 – “Telecom Economics and Telecom Dogmas” - NJ Communications Chapter, 7:00 PM (optional pay-your-own dinner at 5:30 PM at Szechwan Delight restaurant), Lucent Technologies, 600 Mountain Ave, Murray Hill, NJ. Anatoli Olkhovets (908) 582-3999 (ao4@lucent.com).

Upcoming Meetings

Apr. 6-8 – “2004 ASME/IEEE Joint Rail Conference” – IEEE VTS, Renaissance Harborplace Hotel, 202 East Pratt St, Baltimore, MD. See <http://www.asmeconferences.org/jrc04/> for details. Elio Manes (manese@asme.org)

Apr. 7 – “NJ Section Executive Committee Meeting” - 7:00 PM, ITT, 100 Kingsland Rd, Clifton, NJ. Dr. Sanghoon Shin at (973) 492-1207 Ext. 22 or s.shin@ieee.org.

Apr. 16 – “Electrical Transients & Power Quality Seminar” - NJ IAS/PES Chapters, 9:00 AM - 3:00 PM, PSE&G Training Center, 234 Pierson Ave, Edison, NJ. Ronald W. Quade, PE, (212) 833-0268 or rwquade@ieee.org.

Apr. 27 – “The Rational Unified Process Software Development Methodology” - NJ Computer Chapter, 7:00 PM (pre-meeting buffet at 6:00 PM), Public Meeting Room, Morris County Library, 30 E. Hanover Ave, Whippany, NJ. Seth Jakel (973) 731-1902 (sgjakel@comcast.net) or Vivek Shaiva (908) 221-6125 (vshaiva@computer.org).

Apr. 28 – “Evolution and Recent Advances in RF/Microwave Transistors” - EDS/C&S Chapters, 7:00 PM (buffet at 6:15 PM), NJIT, 202 ECE Center, Newark, NJ. Dr. Richard Snyder (973) 492-1207 (RS Microwave), Dr. Durga Misra (973) 596-5739 (dmisra@njit.edu) or Dr. Edip Niver (973) 596-3542 (NJIT).

Apr. 29 – “Lightning Protection” - 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.

May 2 – “NJ Section Awards Reception” - 3:00 to 6:00 PM at the Birchwood Manor, 111 North Jefferson Rd, Whippany, NJ. Anne Giedlinski (973) 377-3175.

May 20 – “Power Management Control Systems” - NJ IAS/PES Chapters, 7:00PM, General Electric Atlantic Region Office, 1st Floor, Maple Plaza 1, 4 Campus Dr, Parsippany, NJ. Ron Quade (212) 833-0268.

Members and Non-Members Welcome

PLEASE POST

NJ Communications Society:

Optical Technologies in Router Design

On March 25, 2004, the IEEE North Jersey Section Communications Society Chapter along with NJIT will host a presentation on "Optical Technologies in Router Design." The speaker will be Dr. Dimitrios Stiliadis.

About the Talk

Next-generation switches and routers may rely on optical technologies to overcome cost, power, space and scalability problems that arise in sizing traditional electrical routers into the multi-terabit regime. However, several technological and architectural problems must be overcome to be able to use such an approach. In this talk we will cover a range of optical technologies that are available today, and demonstrate how we can design router architectures that take advantage of the advantages and limitations of optical components.

About the Speaker

Dimitrios Stiliadis received his PhD and MS degrees in Computer Engineering from the University of California at Santa Cruz, in 1996 and 1994 respectively. Since 1996, he has been with the High-Speed Networks Research Department of Bell Laboratories, where he is currently a Distinguished Member of Technical Staff. During these years he has been leading the architecture of several generations of packet switching equipment. His recent research has been in issues related to traffic management, switch scheduling, and applications of optical technologies to packet networks. He is a co-recipient of the 1998 IEEE Fred W. Ellersik Award.

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, March 25, 2004.

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

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

NJ Consultants' Network:

How an Engineer Ends Up In Court: The Expert Witness

On Thursday, March 25, 2004, the IEEE Consultants' Network of Northern NJ (CNNNJ) will host a talk on "How an Engineer Ends Up In Court: The Expert Witness." The speaker will be Laurence W. Nagel.

About the Talk

Intellectual property is a critical asset that technology companies safeguard through a combination of patents, copyrights, and trade-secret protections. If a company suspects that its intellectual property is being misappropriated, it may seek recourse through a lawsuit charging patent infringement, trade secret misappropriation, or copyright misuse. The technological aspects of the issues involved in these lawsuits are often beyond the grasp of a judge or jury, calling for testimony of an expert witness to interpret matters of fact, but not matters of law.

Mr. Nagel will explain the tools for protecting intellectual property – patents, copyrights, and trade secrets – and the crucial role of the expert witness in litigation.

About the Speaker

Laurence W. Nagel, an expert witness in patent and trade secret litigation and a 29-year veteran of the integrated circuit industry, is proprietor of Omega Enterprises, consultants in analog and RF integrated circuit design, a company he founded in 1998. Mr. Nagel previously served a distinguished career at Bell Laboratories, where he asserted patents and negotiated patent licenses on behalf of the AT&T Intellectual Property Division. Among other accomplishments at Bell Labs, he developed the ADVICE circuit simulation program and served as project manager for development of the Celerity circuit simulation program.

Mr. Nagel earned BS, MS, and PhD degrees at the University of California, where he launched the cottage industry of simulation tools by developing the SPICE circuit simulation program.

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, March 25, 2004.

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.mcekd-integrated.com/directions.htm>.

NJ PES/IAS Chapters:

NJ Energy Auctions

The Power Engineering and Industrial Applications Chapters will sponsor a technical meeting on March 18th concerning forces that are affecting the cost of electric energy in New Jersey. The speaker is Peter Yochum of New Jersey Board of Public Utilities.

About the Talk

In 1999 New Jersey enacted deregulation legislation to make the retail natural gas and electric markets competitive. The New Jersey Board of Public Utilities ("BPU") was charged with the responsibility of implementing this legislation. There were two basic aspects of implementation. The process portion: enrollment, metering, billing and consumer protection produced what is generally considered a workable framework for competition. However in the area of rate design, fixed retail commodity rates during a period of rising wholesale costs hindered the ability of retail suppliers to compete.

The Board is now implementing new initiatives including an internet-based auction process to secure market-based prices, and pricing certain larger customers on an hourly basis. The Board will be conducting its third electric supply auction in February 2004. Peter Yochum's presentation will focus on the outcome of the latest auction, the reasons behind and the future of hourly pricing.

Time: 7:00 PM, Thursday, March 18, 2004. A pre-meeting buffet will be available at 6:30 PM.

Place: Eaton/Cutler Hammer 690 Rahway Ave Union, NJ. Directions: Route 82 Morris Avenue from either Springfield or Union to Rahway Ave.

Information/Map: Ron Quade (212) 833-0268.

An Overview of CMOS Technology for RF IC Applications

On March 10th, 2004, the IEEE NJ Section Electron Devices, Circuits and Systems Chapters together with the New Jersey Institute of Technology will host a talk on "An Overview of CMOS Technology for RF IC Applications." The speaker will be Distinguished Lecturer, Dr. Yuhua Cheng.

About the Talk

This talk will discuss the HF device behavior of CMOS technology, which is an attractive potential process candidate for wireless communication applications. The impact of downscaling of CMOS technology to the RF applications will be introduced first. Then the trend of the device performance will be summarized to understand the device behavior better for RF design requirements. Several important figure-of-merits for MOS transistors such as cutoff frequency (f_T), maximum oscillation frequency (f_{max}), power-gain, noise figure (NF) and linearity etc. will be analyzed together with the discussion of other device components to explore the details of RF CMOS technology. Issues limiting the recent advanced CMOS process for RF application are also addressed to have a complete understanding of RF CMOS technology.

About the Speaker

Yuhua Cheng received the BS Degree in Electrical Engineering from Shandong Polytechnic University, Jinan, China in 1982, the MS Degree in Electrical Engineering from Tianjin University, Tianjin, China in 1985, and the PhD Degree in Electrical Engineering from Tsinghua University, Beijing, China in 1989.

In 1990, he joined in the Institute of Microelectronics (IME), Peking University, China as an assistant professor. From 1992 to 1996, he was an associate professor in the IME and the Department of Computer Science and Technology. From 1994 to 1995, he was a Visiting Professor at the University of Trondheim, Norway, and a Research Fellow of the Norwegian Research Council. From 1995 to 1997, he was a Research Associate at the Department of Electrical Engineering and Computer Sciences, University of California, Berkeley. In 1997, he worked for a short period in Cadence Design Systems as a Member of Consultant Staff before he joined Skyworks Solutions (formerly Conexant Systems and Rockwell Semiconductor Systems), where he is currently the senior manager

of device modeling and technology service team responsible for mixed-signal/RF device (bipolar, MOS and passive) modeling, physical verification, parasitics extraction and foundry technology evaluations/assessments for various (ASIC, Mixed-signal, RF) circuit designs.

He serves technical program committees in several international conferences including the IEEE Custom Integrated Circuits Conference (CICC) and Radio Frequency Integrated Circuits Symposium. He has authored and co-authored over 70 research papers, and two books.

He is a senior member of IEEE, and serves in the Regions/Chapter Committee of IEEE Electron Device Society and the vice-chair of the North America West subcommittee for Regions/Chapters (SRC-NAW) of the EDS Regions/Chapters Committee. He is an EDS Distinguished Lecturer.

All Welcome!

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

Time: 7:00 PM, Wednesday, March 10, 2004. 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>.

Information: Dr. Richard Snyder (973) 492-1207 (RS Microwave), Dr. Durga Misra (973) 596-5739 (dmisra@njit.edu) or Dr. Edip Niver (973) 596-3542 (NJIT).

NJ Section PACE:

PACE, GOLD,

Membership

Engineers Meet: Trends Affecting Engineering Professionals

On Wednesday, March 10, 2004 the North Jersey Section will host the first of several joint PACE, GOLD & Membership meetings. A panel of speakers from these committees will present their views on issues affecting engineering professionals followed by an open discussion session.

About the Meeting

This first meeting will bring you face to face with active members of the North Jersey Section's Executive Committee. After a brief presentation from each committee chair attendees will have an opportunity to voice their views and their concerns.

The topic will include engineering specialties that are growing, shrinking, or remaining level – regardless of the economic environment. Discussion emphasis will be centered on national economic policy and general business climate influencing these trends.

Our goal: ideas shared over our open discussion will help members develop activities and a career strategy for the immediate and long term.

You are encouraged to attend and bring your spouse and associates to this presentation

About the Speakers

Alfonso Crincoli, Chair of the North Jersey GOLD Committee, will discuss economic issues from a membership perspective and compare them to those faced by members of the engineering profession.

Gary Hojell, Chair of the North Jersey's Membership Committee, will address opportunities available through the IEEE to improve their current and future situation.

Richard F. Tax, Chair of the North Jersey PACE Committee and AEA VP, will review fluctuations in manpower demand/supply issues and how attendees can become more effective in the enhancement of their profession.

All Welcome!

This is an invitation and open meeting. Guests, 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
www.ieeeusa.org,
web.njit.edu/~ieeenj/
www.asme.org/sections/northjersey

Time: 6:15 to 9:00 PM, Wednesday, March 10, 2004.

Place: Clifton Memorial Library, 292 Piaget Ave, Clifton, NJ, (973) 772-5500.

Information: Paul Ward, (973) 790-1625, PWard1130@aol.com, Richard F. Tax, (201) 664-6954, rtax@AEA.org.

NJ Communications Society:

Telecom Economics and Telecom Dogmas

On March 25, 2004, the IEEE North Jersey Section Communications Society Chapter along with the New Jersey Nanotechnology Consortium will host a presentation on "Telecom Economics and Telecom Dogmas." The speaker will be Andrew Odlyzko.

About the Talk

The telecommunications industry is in a crisis. It has to deal with the consequences of the huge overinvestment and malinvestment of the late 1990s. It also has to prepare for the disruption of a fundamental restructuring that will be brought about by the shift to broadband. Many of the basic telecom dogmas are hobbling progress and misdirecting research and deployment efforts. This lecture will survey the main economic factors that are likely to affect the development of the telecom industry for the rest of this decade.

About the Speaker

Andrew Odlyzko is Director of the interdisciplinary Digital Technology Center and an Assistant Vice President for Research at the University of Minnesota. Prior to assuming that position in 2001, he devoted 26 years to research and research management at Bell Labs and AT&T Labs. He has written over 150 technical papers and has three patents. He has managed projects in diverse areas, such as security, formal verification methods, parallel and distributed computation, and auction technology. In recent years he has also been working on electronic publishing, electronic commerce, and economics of data networks. All his recent papers as well as further information can be found on his home page at <http://www.dtc.umn.edu/~odlyzko>.

All Welcome!

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

Pre-Registration Required!

To obtain a visitor badge and for capacity planning please register at least three days in advance at <http://www.njnano.org/ieee>.

Time: 7:00 PM (optional pay-your-own dinner at 5:30 PM at Szechwan Delight restaurant), Thursday, March 25, 2004.

Place: Lucent Technologies, 600 Mountain Ave, Murray Hill, NJ 07974.

Information: Anatoli Olkhovets (908) 582-3999 (ao4@lucent.com).

NJ Consultants' Network:

Lightning Protection

On Thursday, April 29, 2004, the IEEE Consultants' Network of Northern NJ (CNNNJ) will host a talk on "Lightning Protection." The speaker will be Jacob K. Struck.

About the Talk

Lightning is a phenomenon that impacts our lives, not only in the realm of personal safety, but also the safety and reliability of technology. Mr. Struck will speak on the science of lightning, its history, and the present and emerging technologies of lightning protection. The presentation will address the following topics:

- History of lightning protection
- Existing lightning regulations
- Dynamics of a lightning strike
- Conventional lightning protection
- Unconventional lightning protection (Voodoo science)
- Emerging protection methods and technology
- Simple precautions to avoid lightning injury & damage

A question and answer period will follow.

About the Speaker

Jacob K. Struck, a world-renowned expert in the science of protecting munitions from lightning strikes, is the leader of the Lightning Technology Team at U.S. Army Picatinny Arsenal. Mr. Struck has received numerous awards from the U.S. government for his work. He graduated with an EE Degree from NJIT.

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.

All Welcome!

Everyone welcome. No registration needed. Free admission.

Time: 7:30 PM, Thursday, April 29, 2004.

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>.

IEEE President-elect W. Cleon Anderson to Present IEEE Presidents' Scholarship

On 13 May 2004 IEEE President-elect W. Cleon Anderson will present the \$10,000 IEEE Presidents' Scholarship at the annual Intel International Science and Engineering Fair (ISEF) held this year in Portland, Oregon. The IEEE Foundation funded \$10,000 Scholarship is awarded for "outstanding achievement in creating a project that demonstrates an understanding of electrical engineering, information technologies, or other IEEE fields of interest." It is the largest award given by an organization at the Special Awards Ceremony at the Intel ISEF. The Scholarship, which is in its sixth year, is the only IEEE-wide scholarship awarded to high school students. For more information on the Scholarship and the Fair, go to www.ieee.org/eab/precollege/scholarship/ or contact Sasha Eydlin at s.eydlin@ieee.org.

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 lieu of providing the conference facility for free, the organization can get free registration up to three members in the course/seminar. Please contact Bhanu Chivakula, Education Committee Chairman, at b.chivakula@computer.org for suggestions or discussions, if interested.

NJ EDS, C&S Chapters: **Evolution and Recent Advances in RF/Microwave Transistors**

On April 28th, 2004, the IEEE NJ Section Electron Devices, Circuits and Systems Chapters together with the New Jersey Institute of Technology will host a talk on "Evolution and Recent Advances in RF/Microwave Transistors." The speaker will be Distinguished Lecturer, Dr. Juin J. Liou.

About the Talk

The development of RF/microwave transistors went almost unnoticed until early 1980's because, unlike Si VLSI, there were no mass consumer markets for such devices. Most applications for RF/microwave transistors had been military or exotic scientific projects. Recently, this has been changed drastically due to the explosive growth in the civil wireless communications and internets. This talk covers the evolution and current status of semiconductor devices for RF/microwave electronics systems. Important background, development and major milestones leading to modern RF/microwave transistors are first presented. This is followed by the discussions of the concept of heterostructure, a feature used frequently in RF/microwave devices. Different transistor types, including Si-, III-V-, and wide bandgap-based devices, and their figures of merit are then addressed. Finally the outlooks of RF/microwave semiconductor devices and their future applications are given.

About the Speaker

Juin J. Liou received the BS (honors), MS, and PhD degrees in Electrical Engineering from the University of Florida, Gainesville, in 1982, 1983, and 1987, respectively. In 1987, he joined the Department of Electrical and Computer Engineering at the University of Central Florida, Orlando, where he is now a Professor. His current research interests are semiconductor device modeling/simulation, RF device/IC design, and semiconductor manufacturing.

Dr. Liou has published six textbooks (another in progress), more than 180 journal papers (including 12 invited articles), and more than 130 papers (including 35 keynote or invited papers) in international and national conference proceedings. He has been awarded more than \$4.5 million of research grants from federal agencies (i.e., NSF, DARPA, Navy, Air Force, Army, NIST), state government, and industry (i.e.,

Semiconductor Research Corp., Intersil Corp., Intel Corp., Lucent Technologies, Texas Instruments, Lockheed Martin), and has held consulting positions with research laboratories and companies in the United States, Japan, Taiwan, and Singapore. In addition, Dr. Liou serves as a technical reviewer for various journals and publishers, as well as a chair or member of the technical program committee for several international conferences. Currently, he is an associate editor for the Simulation Journal in the area of VLSI and circuit simulation, and a regional editor (in USA, Canada and South America) for the Microelectronics Reliability, an international journal published by Elsevier Science.

Dr. Liou received ten different awards on excellence in teaching and research from the University of Central Florida and five different awards from the IEEE Electron Device Society. In the summer of 1992, 1993, and 1994, Dr. Liou was selected as an Air Force Summer Research Fellow at the Air Force Research Laboratory, Dayton, Ohio, where he conducted research on modeling and reliability of AlGaAs/GaAs heterojunction bipolar transistors. In the Fall of 1997, Dr. Liou took a sabbatical leave and held a position as a Visiting Professor in the Electrical Engineering Dept. at National University of Singapore, Singapore.

Dr. Liou is an IEEE EDS Distinguished Lecturer, an IEEE EDS Administrative Committee member, an IEEE EDS Ex-Officio Administrative Committee member, a senior member of the IEEE, and a courtesy professor of Huazhong University of Science and Technology, China.

All Welcome!

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

Time: 7:00 PM, Wednesday, April 28, 2004. 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>.

Information: Dr. Richard Snyder (973) 492-1207 (RS Microwave), Dr. Durga Misra (973) 596-5739 (dmisra@njit.edu) or Dr. Edip Niver (973) 596-3542 (NJIT).

NJ PES/IAS Chapters: **Power Management Control Systems**

The Power Engineering and Industrial Applications Chapters will present a program on Power Management Control Systems for industrial and commercial markets on Thursday evening May 20th. The speaker will be Randy Bouwense.

About the Talk

Lower energy costs, improved equipment performance, harmonic reduction, increased operating efficiencies, improved working environment and less equipment down time are some of the advantages associated with power management control systems.

Randy will discuss the hardware, software, monitoring devices and output intelligence generated by these Power Management Control Systems.

About the Speaker

Randy Bouwense is currently employed by General Electric Industrial Systems as Power Management Systems Engineer. He has over 14 years of experience with various assignments in Automation and Systems Integration.

Advance registration is required three days prior to the meeting. To RSVP, call Ken Oexle at (973) 386-1156.

Time: 7:00 PM, Thursday, May 20, 2004. A pre-meeting buffet will be available at 6:30 PM.

Place: General Electric Atlantic Region Office, 1st Floor, Maple Plaza 1, 4 Campus Dr, Parsippany, NJ. Directions: Route 287 to Route 10 West to Dryden Drive. Left on Campus Drive to building # 4.

Information/Map: Ron Quade (212) 833-0268.

IEEE North Jersey Section Newsletter Advertising

The “NEWSLETTER” is the non-profit professional publication of the North Jersey Section of the Institute of Electrical and Electronics Engineers, Inc.

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IEEE AWARDS RECEPTION

*North Jersey Section
May 2, 2004
Birchwood Manor, Whippany NJ*

*A time to relax, unwind and enjoy --
A time to pay tribute to our new Fellows --
A time to honor our Award Winners --
YES it's time for the Annual Section Reception*

The Annual Section IEEE Awards Reception will be held at the Birchwood Manor, 111 North Jefferson Road, Whippany again this year. The affair is scheduled for **Sunday, May 2, 2004** from 3 to 6 PM. Tickets are \$35.00 each. Spouses and guests are welcome. We are limited to 90 attendees, so please make your reservations early.

Reservations are required by April 23, 2004. Complete the reservation form and return it with your payment. If you would like tickets mailed back to you, please enclose a self-addressed **stamped** envelope. Otherwise, your tickets will be held at the door for you. If any additional information is required concerning the reception, contact Anne Giedlinski at (973) 377-3175.

Use this form for Reception reservations. **ENCLOSE A SELF-ADDRESSED STAMPED ENVELOPE to receive tickets in advance.** **Reservations are required by April 23, 2004.** Mail reservation request to:

Anne Giedlinski
299 Brooklake Road
Florham Park, NJ 07932

Enclosed is _____ for _____ ticket(s) at \$35.00 each (make check payable to **North Jersey Section IEEE**) for:

NAME: _____

ADDRESS: _____

Amrutek Services Inc.
Presents a Symposium on

Wireless LAN Security: Standards, Business Plans and Deployment Issues

by
Dr. Amruthur Narasimhan
President, Amrutek Services Inc.
&
Dr. Manu Malek

Industry Professor and Director of CyberSecurity Certificate Program, Stevens Institute of Technology

Sponsored
by
IEEE NJ Coast, PACE & Consultants Network

Abstract

The dramatic cost reduction of Wireless LANs (WLANs) in the Small Office Home Office (SOHO) market has fueled their proliferation in enterprise. The explosion of wireless devices requiring network services is driving the need to evaluate, implement and support WLAN applications in the network. While WLANs provide flexibility, cost savings, and convenience, their presence introduces security vulnerabilities apart from limitations of scalability, performance, resilience and manageability. In this symposium, we discuss the impending challenges of deploying wireless, how wireless and wired networks can be deployed assuring security. The growing number and intensity of security incidents, coupled with the post-9/11 heightened security concerns, have made security the most important issue relative to the progress of WLAN deployment. Recently, new security methods based on IEEE 802.1x and strong EAP authentication methods, such as EAP-TTLS, have emerged, which offer strong WLAN security.

An overview of WLAN, standards, deployment and security needs will be described. Some related security services and mechanisms will be discussed. A general introduction to the field of security, covering threats, countermeasures, as well as design principles, and practical examples of how to integrate security services into WLAN will be discussed. Security vulnerabilities will be explained by presenting a few examples of security attacks and the safeguards needed to counter them. A brief description of players such as Cisco, AirFlow, Aruba, and Symbol will be provided. Also, deployment challenges, covering typical architectures for WLANs, with the related security issues, will be provided. The symposium will conclude with pointers to future trends in WLAN on secured roaming and privacy issues.

Details on the Symposium Speakers: <http://mywebpages.comcast.net/anarasimhan3/seminar/seminar-speakers.htm>

What you will Learn: <http://mywebpages.comcast.net/anarasimhan3/seminar/wlanSecurity-WillLearn.htm>

Date & Time: March 23, 2004; 8:00 AM to 5:00 PM. Meals will be provided.

Place: Meeting Room 108/109, Magill Commons, Monmouth University. For directions, see <http://www.monmouth.edu/about/atalance/directions.asp>

Information: Dr. Amruthur Narasimhan, anarasimhan@ieee.org, (732) 957-0850.

Registration: Go to www.amrutek.com and click on SEMINAR

Cost:

	Before March 2, 2004	After March 2, 2004
IEEE Member	\$250.00	\$550.00
Non IEEE Member	\$300.00	\$350.00
Student	\$150.00	\$200.00

* Volume discounts are available for 5 or more persons. Registration fee covers meals and presentation material.

Electrical Transients & Power Quality Seminar

The PES and IAS Chapters will sponsor a one-day seminar covering Electrical Transients: Causes, Effects & Solutions and Understanding Power Quality. The session will be held on Friday, April 16, 2004 at the PSE&G Training Center, 234 Pierson Ave, Edison, NJ.

About the Seminar

First topic - **Electrical Transients: Causes, Effects, & Solutions**

Do you depend on electrical and electronic equipment? If so, you're probably familiar with these problems: scrambled and lost data, erratic equipment behavior, equipment failure, excessive repair and replacement costs, frequent downtime, lightning damage.

This dynamic seminar teaches you how to stop the damage today! Understand the transient environment, surge suppression design, proper application of surge suppression devices, the importance of system surveys. Understand how to compare product specifications, how to recognize what is important when writing bid specifications, how to evaluate let-through voltages. Comprehend industry standards and testing parameters. Witness on-site testing. Join members of the industry's leading engineering team as they perform on-site testing. Watch various surge protection devices undergo rigorous test procedures. Learn why test results can be affected by lead length, phase angle, voltage polarity and current. Review UL 1449, the standard for transient voltage surge protection testing and ratings, and ANSI/IEEE C62.41-1991, surge waveform standard.

The presenter will be Randall Raszick from Innovative Technologies.

Second topic - **Understanding Power Quality**

The terms power quality and power reliability have become front-page news across the United States. More importantly, we've learned how much power quality problems are costing this nation, especially facilities with power-sensitive equipment and computerized operations. The good news is that by understanding, monitoring and managing power quality, those costs can be controlled and power quality and reliability problems prevented. We will discuss how power quality and reliability impact business, and what can be done about it. Within our presentation, we will deliver a primer on how to identify power quality problems, typical power quality disturbances and their impact on operating costs and equipment performance. Planning and performing a power quality survey will be addressed, as we "travel" through a typical facility to identify common events and their characteristics. Power quality monitoring approaches and techniques will be covered, including guidance on how to characterize, analyze and report problems. Power monitoring is a preventive maintenance approach, and this program will include many case studies to support the information.

The presenter will be Thurman Bridgers from Dranetz-BMI.

There will be **no fee** for this seminar but space will be limited. Advanced registration is required by April 2nd.

Time: 9:00 AM to 3:00 PM, Friday, April 16, 2004
Place: PSE&G Training Center, 234 Pierson Ave, Edison, NJ
Directions: www.pseg.com/customer/business/small/facility/edison_directions.html
Information: Ronald W. Quade, PE, (212) 833-0268 or rwquade@ieee.org

Registration: Electrical Transients & Power Quality Seminar 4/16/2004

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

Name _____

Address _____

Phone _____ Email _____

IEEE # _____ Student @ _____ Non IEEE _____ Life Member _____

Payment Enclosed \$ _____ Add \$25 late registration after April 2nd

Make Check payable to North Jersey Section IEEE

Small Power Transformer Technical Seminar

The PES and IAS Chapters will sponsor a one-day seminar covering the basics of Medium Voltage Small Power Transformers. The session will be held on Thursday, March 25th at JCP&L, 300 Madison Avenue, Punchbowl Room, Morristown, NJ.

About the Seminar

The seminar will cover the basics of design and product selection of small power transformers for power distribution systems for industrial and commercial facilities. The seminar will focus on the selection of the various types of small power transformers, and how to configure the systems to provide the proper level of reliability based on available project funding.

Topics to be covered include:

9:00 - 9:45	Comparison of Transformer Technologies, Dry Type and Liquid filled Technologies
9:45 - 10:30	Transformer Overload Capability and System Coordination Transformer Thermal Characteristics ANSI C57.12.96 and C57.12.92
10:30 - 10:45	Break
10:45 - 11:30	Testing, Commissioning and Maintenance Transformer Diagnostics Available Gauges and the Importance of Each Reading and Understanding Gas in Oil Test Results Field Testing Insulation Age Expected Remaining Life Power Upgrade

11:30 - 12:00	Fluids: Oil, Less Flammable, Biodegradable
12:00 - 1:00	Lunch
1:00 - 1:45	Short Circuit Withstand Capability Round and Rectangular Construction ANSI Test Requirements Reliability Expectations
1:45 - 2:30	Total Ownership Costs: Initial Cost Energy Cost Maintenance Cost Retirement Cost

About the Instructors

The instructors will be Tommy Nunn and Leon Plaster, ABB.

Tommy Nunn has a BS degree in Electrical Engineering and comes to us with 26 years experience in the medium voltage power equipment industry specializing in Small Power Transformers. His experience in the industry includes ITE, Gould, Brown Boveri Corporation, PEMCO and presently he is the Commercial Operations Manager for ABB's Small Power Transformer Division.

Leon Plaster is now retired but was the Westinghouse/ABB Engineering Manager for their Small Power Transformer manufacturing facility in South Boston, VA. Leon is a Senior Member of IEEE, a IEEE Working Group Chairman for C57.12.40 Network Transformers and Co-Chairman new working group of IEEE C57.12.36 Distribution Substation Transformers. Leon brings 40 years of experience in Transformer Design and manufacturing. He has forgotten more about transformers than most of us will ever know.

The registration fee for this seminar prior to March 11th 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 March 11th 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 3:00 PM, Thursday March 25, 2004.

Place: JCP&L, 300 Madison Avenue, Punchbowl Room, Morristown, NJ.

Directions: Route 287 to Route 124 Exit in Morristown. Follow signs toward Madison, JCP&L is about 1.5 mi on the left side.

Information: Ronald W. Quade, PE, (212) 833-0268 or rwquade@ieee.org.

Registration: Small Power Transformers Seminar 3/25/2004

Register via US mail to: Ronald W. Quade, PE
Eaton Electrical
830 Third Avenue
Suite 920
New York, NY 10022

Name _____

Address _____

Phone _____ Email _____

IEEE # _____ Student @ _____ Non IEEE _____ Life Member _____

Payment Enclosed \$ _____ Add \$25 late registration after March 11th

Make Check payable to North Jersey Section IEEE