

The



IEEE Newsletter

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

NJ EDS, C&S & LEOS Chapters: **Low Noise Millimeter Wave Signal Generation Using Electro-Optic Solid State Microchip Lasers**

On May 8, 2003, the IEEE NJ Section Electron Devices, and Circuits and Systems Chapter, Laser and Electro Optics Chapter, together with the New Jersey Institute of Technology will host a talk on "Low Noise Millimeter Wave Signal Generation Using Electro-Optic Solid State Microchip Lasers." The speaker will be Dr. Peter R. Herczfeld.

About the Talk

This presentation covers the generation of low noise millimeter wave signals using diode pumped solid state microchip lasers. The microchip lasers comprise of a gain medium, usually YVO₄, and an electro-optic medium, such as LiNbO₃ where the electric and optical fields interact. There are two laser configurations we employ. The first one is a multimode laser, which is mode-locked that produces a fixed frequency signal in the form of a closely spaced train of pulses. This type of laser is used in high speed optical A to D converters. The second configuration consists of two short cavity, single mode lasers, whose heterodyned output generates a tunable millimeter wave output. These lasers can produce extremely fast chirped output, 10 GHz/microsecond, useful in medical diagnostics. They can also produce a widely tunable millimeter wave signal with phase noise below -100 dBc/Hz @ 10 kHz offset. We have also used these in advanced communication systems.

About the Speaker

Born in Budapest Hungary in 1936 and now a U.S. citizen, Peter R. Herczfeld received his BS degree in Physics from Colorado State University in 1961, his MS in Physics in 1963, and his PhD in Electrical Engineering in 1967, both from the University of Minnesota. Since 1967 he has been on the faculty of Drexel University, where he is the Lester Kraus

Professor of Electrical and Computer Engineering. Dr. Herczfeld received numerous teaching honors including the Mary and Christian Lindback Distinguished Teacher Award at Drexel University and the IEEE-MTT-S Fred Rosenbaum Distinguished Educator Award.

Dr. Herczfeld is the Director of the center for Microwave-Lightwave Engineering at Drexel, a Center of Excellence that conducts research in microwaves and photonics. He has published over 400 papers in Solid-State Electronics, Microwaves, Photonics, Solar Energy, and Biomedical Engineering. A member of APS and IEEE, he is a recipient of several research and publication awards, including the European Microwave Prize (1986 and 1994). He is a fellow of the IEEE, he is a recipient of the IEEE Millennium Medal and served as a Distinguished Lecturer of IEEE-MTT-S. He initiated the Microwave Photonics Conferences, a LEOS-MTT joint venture, which has blossomed into a highly respected international meeting.

All Welcome!

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

Time: 7:00 PM, Thursday, May 8, 2003. 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 www.njit.edu.

Information: Dr. Richard Snyder (973) 492-1207 (RS Microwave), Dr. Edip Niver (973) 596-3542 (NJIT), or Dr. H. Grebel (973) 596-3538 (grebel@njit.edu).

North Jersey Student Activities Committee and GOLD Seek Volun- teers and Speakers

The NNJ IEEE SAC and GOLD are seeking new volunteers to help conduct business at the section level for the benefit of students in the North Jersey section and surrounding areas. Additionally local student chapters are seeking speakers to give talks on professional and technical topics.

If you would like to speak on professional topics ranging from career development, time or project management, engineering experiences, and many more, or have specific technical topics and developments you would like to contribute, or even have some pet topics of your own, please contact the organizer below.

Additionally, the NNJ SAC is seeking volunteers to get involved at the section level to help organize local events for students and the GOLD membership in the NY-NJ Metro area. If you would like to help out even for short periods of time or maybe take on leading a committee in the section, please contact the organizer Amit Patel (a.j.patel@ieee.org) to find out more and come to a section business meeting.

MAY 2003

May 2003

Volume 49, Number 11

Publication No: USPS 580-500

"The IEEE Newsletter" (North Jersey Section), is published monthly except June and July by The Institute of Electrical and Electronics Engineers, Inc. Headquarters: 3 Park Avenue, 17th Floor, New York, NY 10016-5997. \$1.00 per member per year (included in annual dues) for each member of the North Jersey Section. Periodicals-class postage paid at New York, NY and at additional mailing offices. Postmaster send address changes to: "The IEEE Newsletter", 445 Hoes Lane, P.O. Box 1331, Piscataway, NJ 08855-1331. USPS 580-500 (ISSN 1076-3732).

NEWSLETTER STAFF

Editor Keith Saracinello
Business Manager..... Theresa Saracinello

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.

SECTION OFFICERS

Chairman Dr. Durga Misra
dmisra@njit.edu (973) 596-5739
Vice-Chairman-1.....Rodney Cole
rgcole@ieee.org (973) 299-9022 Ext. 2257
Vice-Chairman-2..... Har Dayal
har.dayal@baesystems.com (973) 633-4618
Treasurer Dr. Edward (Ted) Byrne
flatland@compuserve.com (973) 822-3219
Secretary Dr. Sanghoon Shin
s.shin@ieee.org (973) 492-1207 Ext. 22

Members-at-Large:

Bhanu Chivakula (b.chivakula@computer.org)
Naz Simonelli (naz@sprynet.com)
Dr. Richard Snyder (r.snyder@ieee.org)

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@ieee.org.

NJ EMS and Computer Chapters: Presenting a Pair of Lectures – Business Process Management: The Next Software Category and An Introduction to the Unified Modeling Language

On Thursday, May 22nd, 2003, the IEEE North Jersey Section Engineering Management Society and Computer Chapters will host a pair of presentations - "Business Process Management: The Next Software Category" and "An Introduction to the Unified Modeling Language" by Arthur J. Hedge III.

About the Talk - Business Process Management

A new category of software development tools is emerging that promises to bridge the gap that exists between what business users want and what technology typically delivers. This talk will discuss Business Process Management, what the business drivers behind it are, and how the Enterprise Application Integration and Workflow vendors are converging.

About the Talk - Unified Modeling Language

The Unified Modeling Language (UML) is the key tools used by analysts in designing Object-Oriented systems that support Business Processes. This presentation will cover the history of UML, the major models that it supports, an overview of tools on the market, and how it supports OO development.

About the Speaker

Arthur J. Hedge III is currently President of Castle Ventures. He focuses on helping companies reduce costs and operate more effectively by improving their business processes. Mr. Hedge has over 20 years of consulting expertise, focused on large-scale application development. He is also a member of the AIIM Document Management standards committee. Mr. Hedge is a graduate of the Massachusetts Institute of Technology.

All Welcome!

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

Time: 7:00 PM, Thursday, May 22, 2003.
Pre-meeting dinner at 6:00 PM.

Place: Public Meeting Room, Morris County Library, 30 E. Hanover Ave, Whippany, NJ, (973) 285-6930.

Information: Mario Bernadel, (201) 489-8492 (mbernad@ieee.org) or Wayne Owens (Crestron Electronics) (201) 767-3400 x226 (wowens@ieee.org).

New Drexel University Online Program Offered to IEEE Members at 10% Off Graduate Tuition!

Drexel University has recently added TechnoMBA Master's in Business Administration to the catalog of online programs it offers to IEEE members at a special tuition rate (10% off regular tuition). This in an MBA program with a focus on Technology Management. It has been ranked among the "Best Online MBA Programs" by the U.S. News & World Report.

Programs are delivered using Drexel's, highly interactive, eLearning system. They follow the same rigorous academic standards of the university's on-campus programs and lead to the same degrees, no differentiation for online students. Designed for working professionals, Drexel's online programs combine convenience with quality education.

A pioneer in online education, Drexel University is Philadelphia's technological university and a leading U.S. academic and research institution with a 110-year legacy in educating engineers for successful careers.

To learn more about this or other programs offered by Drexel, visit www.ieee.org/edupartners, and choose Drexel University from the list of university partners.

Now accepting applications for classes starting on March 31, 2003.

For more information please go to the IEEE Education Partners Program:

<http://www.ieee.org/organizations/eab/eduPartners.htm>



**Need Help?
Don't Wait for
a Crisis!**

FREE referral service:

IEEE CONSULTANTS' NETWORK
OF NORTHERN NJ
www.TechnologyOnTap.org

IEEE North Jersey Section Activities

May 2003

May 4 - "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 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 .

May 8 - "Low Noise Millimeter Wave Signal Generation Using Electro-Optic Solid State Microchip Lasers" - EDS/C&S and LEOS Chapters, 7:00PM (buffet at 6:15PM), NJIT, 202 ECE Center, Newark, NJ. Dr. Richard Snyder (973) 492-1207 (RS Microwave), Dr. Edip Niver (973) 596-3542 (NJIT), or Dr. H. Grebel (973) 596-3538 (grebel@njit.edu).

May 14 - "Unemployed Engineers" - NJ PACE, 6:30 – 8:30 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).

May 22 - "Infrequently Asked Questions: The Art of Networking" - NJ Consultants' Network, 7:30 PM, MCE/KDI Triangle, 60 S. Jefferson Rd, Whippany, NJ. Robert Walker (973) 728-0344 or www.TechnologyOnTap.org.

May 22 - "Presenting a Pair of Lectures – Business Process Management: The Next Software Category and An Introduction to the Unified Modeling Language" - NJ EMS and Computer Chapters, 7:00 PM, Public Meeting Room, Morris County Library, 30 E. Hanover Ave, Whippany, NJ. Mario Bernadel, (201) 489-8492 (mbernadel@ieee.org) or Wayne Owens (Crestron Electronics) (201) 767-3400 x226 (wowens@ieee.org).

Upcoming Meetings

June 4 - "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.

June 11 - "Unemployed Engineers" - NJ PACE, 6:30 – 8:30 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).

Aug. 10-13 - "ITRE 2003 - IEEE International Conference on Information Technology: Research and Education" - Newark, NJ. For further information see <http://web.njit.edu/itre2003> or email itre2003@njit.edu.

Sept. 17 - "Advanced JAVA Programming" - North Jersey Section, Wednesday Evenings, 10 sessions, 6:30-9:00 PM, Ramada Inn, 265 Route 3 East, Clifton, NJ. Bhanu Chivakula (b.chivakula@computer.org).

Oct. 17-18 - "Call for Participation - Consortium for Computing Sciences in College - Eastern Region - Nineteenth Annual Conference" - Montclair State University, Upper Montclair, NJ. For further information see <http://www.csam.montclair.edu/~deremer/CCSCE2003Call.pdf> or <http://www.ccsc.org>.

Members and Non-Members Welcome

PLEASE POST

Reminder: The June Newsletter will be electronic only. If you have a valid email address on record, you will receive the Newsletter via email. To update your email address, go to

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

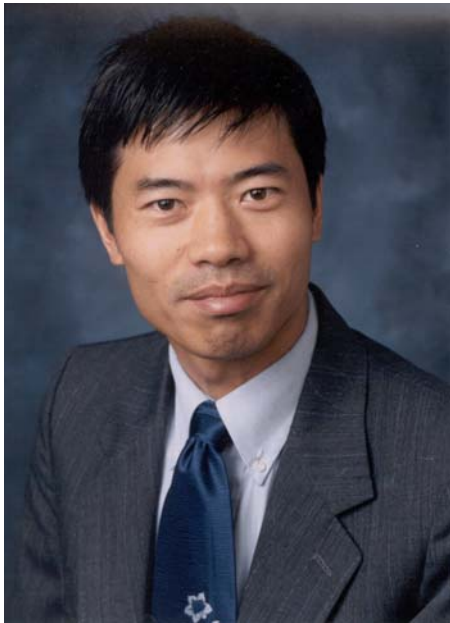
As always, that latest meeting updates can be found on the Newsletter webpage

<http://web.njit.edu/~ieeenj/NEWSLETTER.html>

2003 IEEE NORTH JERSEY FELLOWS

Mengchu Zhou

"For contributions to Petri nets and their applications."



MengChu Zhou (S'88-M'90-SM'93-F'03) received his BS Degree from Nanjing University of Science and Technology, Nanjing, China in 1983, MS Degree from Beijing Institute of Technology, Beijing, China in 1986, and PhD Degree in Computer and Systems Engineering from Rensselaer Polytechnic Institute, Troy, NY in 1990. He joined New Jersey Institute of Technology (NJIT), Newark, NJ in 1990, and is currently a Professor of Electrical and Computer Engineering and the Director of Discrete-Event Systems Laboratory. His research interests are in computer-integrated systems, Petri nets, semiconductor manufacturing, multi-lifecycle engineering, and system security. He has over 180 publications including 4 books, over 50 journal papers, and 10 book-chapters. He co-authored with F. DiCesare *Petri Net Synthesis for Discrete Event Control of Manufacturing Systems*, Kluwer Academic, Boston, MA, 1993, edited *Petri Nets in Flexible and Agile Automation*, Kluwer Academic, 1995, and co-authored with K. Venkatesh *Modeling, Simulation, and Control of Flexible Manufacturing Systems: A Petri Net Approach*, World Scientific, 1998.

He was invited to lecture in Australia, Canada, China, France, Germany, Hong Kong, Italy, Japan, Korea, Taiwan, and the U.S. He served as Associate Editor of IEEE Transactions on Robotics and Automation from 1997 to 2000 and is currently Associate Editor of IEEE

Transactions on Systems, Man and Cybernetics. He organized and chaired over 60 technical sessions and served on program committees for many conferences. He was Program Chair of 1998 and Co-Chair of 2001 IEEE International Conference on System, Man and Cybernetics (SMC) and 1997 IEEE International Conference on Emerging Technologies and Factory Automation, and Guest Editors for IEEE Transactions on Industrial Electronics, and IEEE Transactions on Semiconductor Manufacturing. He has been an editor of International Journal of Intelligent Control and Systems since 1996. He is General Co-Chair of 2003 IEEE International Conference on System, Man and Cybernetics, Washington DC, October 5-8, 2003. Dr. Zhou has led or participated in twenty-six research and education projects with total budget over \$10M, funded by National Science Foundation, Department of Defense, Engineering Foundation, New Jersey Science and Technology Commission, and industry. He was the recipient of NSF's Research Initiation Award, CIM University-LEAD Award by Society of Manufacturing Engineers, Perlis Research Award by NJIT, Humboldt Research Award for U.S. Senior Scientists, Leadership Award and Academic Achievement Award by Chinese Association for Science and Technology-USA, and Asian American Achievement Award by Asian American Heritage Council of New Jersey. He is Chair (founding) of Discrete Event Systems Technical Committee of IEEE Systems, Man, and Cybernetics Society, and Co-Chair (founding) of Semiconductor Factory Automation Technical Committee of IEEE Robotics and Automation. He is a life member of Chinese Association for Science and Technology-USA and served as its President in 1999.

Thomas L. Marzetta

"For contributions to the theory of multidimensional signal processing and multiple-antenna communications."

Thomas L. Marzetta was born in Washington, DC. He received a PhD in electrical engineering from the Massachusetts Institute of Technology in 1978. His dissertation extended the three-way equivalence of autocorrelation sequences, minimum-phase prediction error filters, and reflection coefficient sequences to the two-dimensional case. He worked for Schlumberger-Doll Research from 1978 to 1987 to modernize geophysical signal processing for petroleum exploration. From 1987 to 1995 he performed research and development at Nichols Research Corporation under contracts from the U.S. Department of Defense, NASA, and Schlumberger; he headed a group that improved automatic target recognition, radar signal processing, and video motion detection. Since 1995 he has been with Bell Laboratories (formerly AT&T, now Lucent Technologies), currently in the Mathematical Sciences Research Center where he is the Head of the Mathematics of Communications Research Department. He specializes in multiple antenna wireless with particular emphasis on techniques for realizing extremely high throughputs with large numbers of antennas.

Dr. Marzetta is a member of the Sensor Array and Multichannel Technical Committee of the Signal Processing Society, and a guest editor for the Special issue of the IEEE Transactions on Information Theory on Space-Time Transmission, Reception, Coding and Signal Design. He was the recipient of the 1981 ASSP Paper Award from the IEEE Signal Processing Society.

IEEE John von Neumann Medal

Alfred V. Aho



Alfred Aho was born on August 9, 1941 in Timmins, Ontario, Canada. He obtained a BSc Degree in Engineering Physics from the University of Toronto in 1963 and a PhD Degree in Electrical Engineering/Computer Science from Princeton University in 1967.

Upon graduating from Princeton, Dr. Aho joined the research division of Bell Laboratories in Murray Hill, NJ where he conducted research in fundamental areas of computer science from 1967 to 1991 and from 1997 to 2002. His most recent position at Bell Laboratories was Computing Sciences Research Vice President. From 1991 to 1995 he served as General Manager of the Information Sciences and Technologies Research Laboratory at Bellcore (now Telcordia). He has been a Professor in the Computer Science Department at Columbia University since 1995, and he is currently Chair of the department.

Dr. Aho's early work was in formal language theory and the foundations of computer science. At Bell Laboratories, he invented efficient algorithms for key problems arising in text-processing applications and programming language translation. His innovative pattern-matching algorithms are embodied in his widely used text-processing programs awk, egrep and fgrep and in the compiler-construction tools lex and yacc. His efficient code-generation algorithms were influential in the early development of retargetable C compilers which allowed the Unix operating system to be quickly ported to machines ranging from the smallest mini-computers to the largest super-computers.

Dr. Aho is a Fellow of the AAAS, ACM, Bell Labs and IEEE. He has published over 80 papers and holds four patents. His ten books are frequently cited by

computer science researchers throughout the world. He is a member of the United States National Academy of Engineering and has received honorary doctorates from the Universities of Helsinki and Waterloo. Dr. Aho has served as Chair of the External Advisory Committee for the Computer and Information Science and Engineering Directorate of the National Science Foundation and as Chair of the ACM Special Interest Group on Algorithms and Computation Theory.

NJ Section PACE: Unemployed Engineers

On Wednesday, May 14th and June 11th, the North Jersey Section Professional Activities Committee will meet to discuss the involvement with Congressional, State and Local representatives. As the job situation for members of the engineering community worsens this will prepare us to present and discuss our concerns.

You do not have to be unemployed to attend. All jobs are being threatened. You are encouraged to attend and bring your associates.

About the Meeting:

This meeting provides an opportunity to meet and discuss the unemployment situation. High on the IEEE-USA list of subjects is unemployment and the displacement of American citizens by sending jobs offshore and imported foreign workers under the H-1B and L1 legislation. Now the New Jersey State Senate and Assembly have introduced legislation affecting U.S. and foreign workers in NJ.

This year one IEEE-USA goal is to roll the H-1B number back to 65,000. And, please do not confuse this as an "immigration" issue. This is all about money and wage busting.

We need input and views from the unemployed on this important issue. We would also like you to confirm your attendance via e-mail or telephone. When we reach a suitable attendance we will invite the press to give visibility to the employment situation here in New Jersey.

Our PACE meeting is open to discuss professional needs. PACE provides the opportunity to meet, address, discuss and perhaps improve the professional aspects of the engineering profession. We should take advantage of the opportunity to have a place and time to meet. Invite your associates to join us. Bring engineers and students from the other engineering disciplines

According to IEEE-USA leaders

"Employment Assistance and Career Development are important" and they request your help. More on these projects can be found at www.ieeeusa.org

"Today's Immigrant - Tomorrow's Victim" see www.aea.org.

All Welcome!

You do not have to be a member of the IEEE to attend. Members and students from other professional societies and engineering disciplines are always welcome.

Time: 6:30 to 8:30 PM, Wednesday, May 14 and June 11, 2003.

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 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, Co-chair, Education Committee at b.chivakula@computer.org for suggestions or discussions, if interested.

IEEE-USA Calls for Government Agencies to Consider Ethernet Networks for Prominent Role in Accelerating Advanced Broadband Deployment

WASHINGTON (6 March 2003) - Federal, state and local government policymakers should ensure that Ethernet networks over fiber infrastructures be fully considered and given a fair marketplace opportunity to prove their value in accelerating advanced broadband deployment, according to an IEEE-USA position adopted by the organization's board of directors last month in Dallas.

IEEE-USA is concerned that scalable gigabit broadband networks, which can be changed in size or configuration to suit changing conditions, are not receiving serious consideration at policy levels in the United States, nor are they being rapidly deployed. This lack of scalability leaves us behind other countries, which recognize that rapidly deploying broadband communications networks offers the potential to enhance a nation's productivity, homeland security and international competitiveness.

In practical terms, IEEE-USA's recommendations mean that the convergence of video, voice and data services could occur because gigabit Ethernet infrastructures offer over 1000 times as much bandwidth as current digital subscriber line (DSL) and cable broadband networks. A transfer of data taking 15.5 minutes on DSL (8.5 mbps) takes just eight seconds with Ethernet over fiber networks. Speed like that will allow businesses to operate far more efficiently, according to IEEE-USA.

"Of the several technology options we studied, we judge this combination to be among the strongest candidates for immediate and rapid deployment of advanced broadband networks," IEEE-USA Vice President for Technology Policy Activities Ralph Wyndrum said. "We recommend that Ethernet networks over fiber infrastructures fill the gap among technologies that are already included in the national debate: DSL, cable-modem and wireless applications."

The organization's position grew out of an international broadband workshop held in June 2002, and subsequent discussion and analyses by technology, policy and economics experts. These meetings established that technological and economic potential exists for accelerating broadband deployment through Ethernet

networks capable of gigabit speeds, especially those complemented by compatible wireless technologies. For the entire position statement, go to

<http://www.ieeeusa.org/FORUM/POSITIONS/broadband.html>

Spring 2003 Student Presentation Contest Concludes

The student presentation contest for spring 2003 was held on Tuesday, March 11 at Fairleigh Dickinson University. The contest was well attended and had a good number of participants. There were close to 40 attendees and seven registered presenters. Four judges volunteered their time to grade each of the speakers. The purpose of the contest is to help students improve their communication and presentation skills. Each presenter received the judge's comment sheets to help touch up their weaker areas.

The contest started with dinner and then moved right into the graduate and undergraduate categories. Many different topics were covered using highly creative slide programs. Students from Fairleigh Dickinson University and New Jersey Institute of Technology covered topics from electronic devices, to network utilization, to circuit board testing. The range and depth of the topics varied greatly and showed the excellent preparations and research done by each of the students. The winners, titles, and short abstracts can be found on the web. Winners in both categories were awarded 1st/2nd/3rd place prizes in the amounts of \$100/\$75/\$50 respectively. All participants also received official certificates and conference briefcases.

The next round of competition will be the regional contest to be held at Boston University in Boston, MA near the weekend of April 28th. All the details of their program can be found off the SAC website

http://ewh.ieee.org/r1/north_jersey/sac/ieee.html

The North Jersey Section Presentation contest will be again held next spring. Greater participation is hoped and the call for presentations will start early in November. ALL North Jersey GRAD/UGRADS are welcome to participate for prizes. Special thanks goes to our judges, M. Baker, S. Wilkowski, and H. Henn for taking the time to support local students and hosts G. Reinish and the FDU IEEE student branch.

*Charlie Han – 1st Place Undergrad
Fairleigh Dickinson University
"Automotive Engine Coolant Service
Monitoring System (ECSMS)"*

Engine coolant is a vital fluid in any internal combustion engine, however it is one of the most neglected systems in the vehicle. Even the newest domestic automobiles lack service indicators for engine coolant. If equipped, they would inform the owner to service the fluid before any serious damage occurs from electrolysis and metal breakdown. The proposed ECSMS will essentially utilize sensors to monitor the pH of the coolant mixture, as well as the DC voltage of the coolant with respect to ground. By monitoring the pH and voltage, the sensors can notify the owner when unsafe coolant conditions are present. Ultimately, using the ECSMS in the vehicle will prevent excessive corrosion and accelerated electrolysis, enabling automobile owners to save hundreds if not thousands of dollars by not having to replace heater cores, expensive radiators, and water pumps.

*TIAS KUNDU – 1st Place Grad
New Jersey Institute of Technology
"Reliability of Thin Oxides Grown on
Deuterium Implanted Silicon Substrate"*

Investigated the reliability of gate oxide with deuterium incorporated at the Si/SiO₂ interface through low energy ion implantation in the silicon substrate before thin oxide growth. Investigation was carried out on gate oxide layers with thickness in the range of 4nm in polycrystalline Si-SiO₂-Si metal/oxide/semiconductor capacitors. Implantation of deuterium can be carried out at different energies and at different doses. Deuterium implantation at a dose of 1 x 10¹⁴/cm² at 25 Kev showed improved breakdown characteristics. Investigations are carried out to study the effect of the implantation on NMOS transistors.

*John Carcich – 2nd Place Undergrad
Fairleigh Dickinson University
"In-circuit Continuity Tester"*

The aim of this project is the design of a smart alternative to using an ohmmeter for routine wiring checks. The in-circuit continuity tester is specially designed to check the wiring of experimental breadboards and populated printed circuit cards. What makes this tester unique is its ability to ignore a low-resistance alternate path through a component if an

open connection is found. The tester can be adjusted to ignore a resistance as low as one ohm or less. This feature is useful if the breadboard contains many low-resistance components such as inductors or relay coils. Only a true connection from one component to another will produce a tone. The tester also features a voltage alarm circuit that is triggered when a voltage source, such as a charged capacitor is encountered. A tester of this kind is useful, since existing digital multimeters feature audible continuity checkers which may indicate continuity through resistances as high as seventy ohms.

*Jingxuan Liu – 2nd Place Grad
New Jersey Institute of Technology
“Forward Resource Reservation for the
OBS-enabled WDM Network”*

This paper addresses the latency reduction problem for the Optical Burst Switching (OBS) enabled Wavelength Division Multiplexing (WDM) networks. Specifically, we propose a Forward Resource Reservation (FRR) scheme to reduce the data burst delay at the edge nodes of OBS systems. We also present an aggressive reservation strategy to deliver a significant performance improvement with controllable system cost. Theoretical analysis is conducted to evaluate the system performance in terms of the latency reduction improvement and the bandwidth overhead, showing that by reserving resources in an aggressive manner, our FRR system yields a significant delay reduction for time-critical traffic, while maintaining the bandwidth overhead within limits. Simulation results have validated our discussions.

*William Gannon - 3rd Place Undergrad
Fairleigh Dickinson University
“Smart Cars”*

Every year there are millions of auto accidents, costing a lot of money due to damage and thousands of lives are lost. These accidents are caused due to human error and carelessness. If we could somehow minimize human errors during everyday driving we could drastically reduce the number of accidents and fatalities. This can be done through the use of robotic technology to control the vehicle and make the roads safer. Different techniques can be used to simulate the human sense of sight and a vehicle can be completely controlled by the computer eliminating the need for humans to operate the vehicle. Besides saving lives, benefits of such a system would be the reduction in traffic

congestion, increasing the capacity of freeways, reducing the need for expanding highways, and also reducing fuel consumption and exhaust emissions.

*Amin Katouzian – 3rd Place Grad
Fairleigh Dickinson University
“Speech Recognition Using Neural
Networks”*

In this project, I have used neural networks in order to recognize single words. At the beginning, the project had been defined just for ten single words and depended on recognizing the speaker's voice but by using filter banks and implementing a new and simple method for separating speech signal from silence, the system could recognize more than 200 single words and it became independent of the speaker's voice. In the features extraction part, both Fourier algorithms and filter banks have been used and frequency domain criteria were changed slightly. To take advantage of the human hearing system, instead of the Hertz criteria the Bark transformation was performed.

*Purushothaman Srinivasan - Honorable
Mention Grad
New Jersey Institute of Technology
“Effect of Reverse Bias Voltage on Hot
Electron Stressed MOSFETs”*

Hot carrier degradation is one of the major reliability issues in the silicon industry and this research aims to understand and reduce this effect and increase the lifetime of the transistors. The aim of the paper is to understand the effect of the reverse bias voltage on the hot carrier induced high field electron injection on MOSFETs. This effect is being carried out as a measure of device threshold voltage and transconductance. Due to this effect, the threshold voltage and transconductance value increases along with interface trap density. When a reverse bias voltage is being applied to source and the drain, the induced depletion layer between the p and n junctions of the transistor, protects the device from excessive stressing of the device thereby increasing the reliability of the transistor.

NJ Consultants' Network: **Infrequently Asked Questions: The Art of Networking**

The art of finding help when you need it will be demonstrated and practiced at the May 22nd meeting of the IEEE Consultants Network of Northern NJ (CNNNJ). CNNNJ member Merrill Rutman will lead a discussion on networking techniques. The discussion will be followed by a live networking session.

About the Talk

Networking is our middle name at the CNNNJ. As independent engineering practitioners, we rely upon who we know, as well as what we know, for almost every aspect of our businesses. Landing consulting assignments and then delivering the product or service that our clients expect requires human connections, so we're constantly challenged to exercise our network of contacts to locate someone with information and skills that we don't have. At this meeting, we'll discuss and demonstrate techniques for using our current contacts as a springboard to the wider world where lie the answers that we seek.

About the Speaker

Merrill Rutman, a technical writer and a former electronics engineer and procurement project leader with the Defense Department, is a veteran member of the CNNNJ. He founded and ran a successful job-search networking organization for engineers and other technical professionals during the economic recession in the early 1990s. Merrill enjoys networking and believes that the key to success is in the listening.

About the Consultants' Network

The IEEE Consultants' Network of Northern NJ was founded in 1992 to encourage and promote the use of independent technical consultants by business and industry.

All Welcome!

You do not have to be a member of the IEEE or of the Consultants' Network to attend. Admission is free.

Time: 7:30 PM, Thursday, May 22nd, 2003.

Place: MCE/KDI Triangle, 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.kditriangle.com/directions.htm>.

Offshore Outsourcing and Labor Importing Put the Squeeze on Jobs in the U.S. High-Tech Industry

WASHINGTON (24 March 2003) - The United States lost 560,000 jobs in the high-tech industry in 2001-02, according to a 19 March report by the American Electronics Association (http://www.aeanet.org/PressRoom/idmk_2002_tech_employment_press.asp). While IEEE-USA commends AeA for its Tech Employment Update, the unanswered question is where these jobs have gone.

"In addition to the downturn in the U.S. economy, we're worried about the eagerness of American businesses to move high-tech jobs overseas," IEEE-USA President-Elect John Steadman said. "Congress should take a close look at overseas outsourcing to see what can be done to create and keep high-value, high-tech jobs here in the U.S."

During roughly the same time period (FY '01 and '02) our nation lost more than half-a-million high-tech jobs, both blue collar and professional. 799,700 new or renewal H-1B visas were issued. And according to a 6 March article in Business Week, another 329,000 people were working in the U.S. on L-1 visas in 2001, many in the high-tech sector.

In "A Mainframe-Size Visa Loophole," Business Week noted that the L-1 visa is intended for "intracompany transfers by multinational corporations," but "many employers looking to slash costs have discovered that they can use [outsourcing] firms that hire L-1s to dump high-paid Americans in favor of cheaper workers from abroad." Read on at http://www.businessweek.com/careers/content/mar2003/ca2003036_6655.htm.

The unemployment rate for electrical and electronics engineers (EEs) has more than tripled since 2000, going from 1.3 percent to 4.2 percent last year. For computer scientists, the jobless rate jumped from two percent to five percent.

"We have thousands of unemployed engineers, computer scientists and recent college graduates who are having difficulty finding employment because many of the jobs are taken by cheaper, foreign labor," Steadman said. "With jobs disappearing and historically high levels of unemployment among high-tech professionals, IEEE-USA asks why we continue importing thousands of new workers through the H-1B and L-1 visa programs.

"We should put our own people to work before sending any more good jobs to other countries."

Moreover, IEEE-USA President Jim Leonard, in a 10 March letter, asked every member of Congress to limit the number of H-1B visas available for admission to the U.S., and ensure that more of the H-1B fee revenue is used to address the specialized instructional needs of unemployed engineers, scientists and other high-tech professionals. The money currently goes more to entry-level training for lower-skilled workers.

Leonard also urges Congress to let the current H-1B visa cap of 195,000 drop back to the historical level of 65,000, which will happen on 1 October with no further congressional action.



VINNY™

The NASA Center for Distance Learning in cooperation with Christopher Newport University and Institute of Electrical and Electronic Engineers (IEEE) announce the VINNY™ award. Named in honor of Leonard da Vinci, a man famous for the creative use of science, technology, engineering, and mathematics to solve human problems, designed to help heighten and increase awareness of science, technology, engineering, and mathematics (STEM). VINNY is a global video competition. Registration is now open to K-12 (pre-college) teachers and students worldwide.

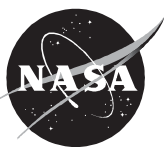
VINNY can be used to supplement curricula and support commonly recognized standards of learning. The competition challenges teams, made up of three students and one teacher, to identify and research a global problem and discover ways that STEM can be used to help solve it. The final product to be submitted for judging is a one-minute video explaining the global problem and a possible STEM solution. Submissions can be made in six categories:

- Grade level: elementary grades 3-5, middle grades 6-8, and high grades 9-12, and
- Two languages: English and Spanish.

Prizes and recognition for schools, students, and teachers will be awarded in each of the six categories. In addition to the prizes and recognition, winning one-minute videos will be exhibited on the NASA's Kids Science News Network™ (NASA's KSNNTM) web site. Competition explanation, rules, and registration information is available on the web at <http://vinny.pcs.cnu.edu>. Registration deadline is October 31, 2003.

Funding for the VINNY is provided by the Institute of Electrical and Electronics Engineers Foundation. The IEEE is a non-profit, technical professional association of more than 377,000 individual members in 150 countries. Through its members, the IEEE is a leading authority in technical areas ranging from computer engineering, biomedical technology and telecommunications, to electric power, aerospace and consumer electronics, among others. Information on the IEEE Foundation can be found at www.ieee.org.

For VINNY registration and guidelines, visit <http://vinny.pcs.cnu.edu>. For NASA Center for Distance Learning information, visit <http://dlcenter.nasa.gov> or contact Harla Sherwood at (757) 864-5287 or h.r.sherwood@larc.nasa.gov. Information about Christopher Newport University is available at www.cnu.edu.



2003 IEEE North Jersey Section Officers, Committee Chairs and Society Chapter Chairs

Feel free to contact any of the people below if you have feedback or questions.

IEEE North Jersey Section Officers			
Office	Name	Email	Phone
Chairman	Dr. Durga Misra	dmisra@njit.edu	(973) 596-5739
Vice-Chairman-1	Rodney Cole	rgcole@ieee.org	(973) 299-9022 Ext. 2257
Vice-Chairman-2	Har Dayal	har.dayal@baesystems.com	(973) 633-4618
Treasurer	Dr. Edward (Ted) Byrne	flatland@compuserve.com	(973) 822-3219
Secretary	Dr. Sanghoon Shin	s.shin@ieee.org	(973) 492-1207 Ext. 22
Past Chairman	Dr. Nirwan Ansari	nirwan.ansari@njit.edu	(973) 596-3670
Member-at-Large	Bhanu Chivakula Naz Simonelli Dr. Richard Snyder	b.chivakula@computer.org naz@sprynet.com r.snyder@ieee.org	(732) 718-3818 (973) 895-9567 (973) 492-1207 Ext. 23

Committee Chairs and Vice-Chairs			
Committee	Name	Email	Phone
Awards/Banquet	Ken Oexle	k.oexle@worldnet.att.net	(973) 386-1156
Consultants Network	Jim Boyd	j.boyd@ieee.org	(973) 584-0329
Conference	Mel Lewis Art Greenberg Joe Nelson	m.lewis@ieee.org ahg1@lucent.com hirshchman@msn.com	- - -
Education	Bhanu Chivakula	b.chivakula@computer.org	-
GOLD	Vacant	-	-
Group Coordinator	Vacant	-	-
Historian	Alan Stolpen	a.stolpen@ieee.org	(908) 575-8288
Industry Liaison	Joe Nelson	hirschman@msn.com	-
Life Members	Willie Schmidt	-	(973) 492-0371
Membership	Gary Hojell	gary.hojell@itt.com	(973) 284-2493
METSAC	Dr. Fred Chichester	-	Voice mail (973) 744-306
Newsletter	Keith Saracinello	k.saracinello@ieee.org	(908) 791-4067
Nominations	Dr. Fred Chichester Mel Lewis	- m.lewis@ieee.org	Voice mail (973) 744-3065 -
PACE	Richard Tax	rtax@bellatlantic.net	(201) 664-6954
Planning	Vacant	-	-
Programs Coordinator	Alan Stolpen	a.stolpen@ieee.org	(908) 575-8288
Publicity	Art Greenberg	ahg1@lucent.com	-
Publications	Vacant	-	-
Student Activities	Amit Patel	a.j.patel@ieee.org	-

Society Chapter Chairs and Vice-Chairs			
Society	Name	Email	Phone
Antennas & Propagation/Microwave Theory and Techniques Society (AP-03/MTT-17)	Kirit Dixit Har Dayal Wilhelm Schmidt	kdixit@ieee.org har.dayal@baesystems.com -	- (973) 633-4618 (973) 492-0371
Circuits & Systems/Electron Devices (CAS-04/ED-15)	Dr. Richard Snyder	r.snyder@ieee.org	(973) 492-1207
Communications (COM-19)	Dr. Nirwan Ansari Amit Patel	nirwan.ansari@njit.edu a.j.patel@ieee.org	(973) 596-3670 -
Computers (C-16)	Mario Bernadel Seth Jakel	mberndel@ieee.org sgjakel@comcast.net	(201) 489-8492 (973) 731-1902
Control Systems (CS-23)	Dr. Timothy Chang	tnc0766@tesla.njit.edu	-
Engineering Management (EM-14)	Wayne Owens	wowens@ieee.org	-
Industrial Applications (IA-34)	Ken Oexle	k.oexle@worldnet.att.net	(973) 386-1156
Power Engineering (PE-31)	Ron Quade	RWQuade@ieee.org	(212) 833-0268
Laser Electro-optics (LEO-36)	Dr. Haim Grebel	grebel@njit.edu	-
Signal Processing (SP-01)	Dr. Yun Shi Dr. Alfredo Tan Dr. Hong Man	shi@njit.edu tan@fdu.edu hman@sunshine.ece.stevens-tech.edu	(973) 596-3501 (201) 692-2324 (201) 216-5038
Systems, Man, Cybernetics (SMC-28)	Dr. Mike Liechenstein	itsmikesju@aol.com	-
Vehicular Technology (VT-06)	Mel Lewis Art Greenberg	m.lewis@ieee.org ahg1@lucent.com	-

IEEE North Jersey Section Seminar Advanced Java Programming

*Wednesday Evenings, September 17, 2003 through November 19, 2003 - ten weekly classes
(September 17, 24, October 1, 8, 15, 22, 29, November 5, 12, 19, 2003)
Ramada Inn, 265 Route 3 East, Clifton, NJ (Checks should not be mailed to this address)*

The North Jersey Section IEEE is offering an evening course entitled "Advanced Java Programming." About 2.5 million Java Programmers are currently working on all types of commercial projects in the world, ranging from cell phone applets, to UNIX server, to mainframe data-warehouse access. This course covers various server side programming techniques. The prerequisite for this course is that attendees should know fundamentals of Java or have completed an Introduction to Java Programming seminar.

Instructor: Donald Hsu, PhD, has been a corporate manager for 11 years and is an experienced trainer. Since 1997, he trained 300+ people in Java Programming and Advanced Java Programming courses in seven organizations.

TOPICS

1. Explain the concept of Multithreading and Collections
2. Distinguish different types of Java Servlets and Networks
3. Define the use of Java Database Connectivity and Remote Method Invocation
4. Identify the details of Advanced Swing and Advanced AWT
5. Construct Enterprise Java Beans and Cold Fusion
6. Analyze Firewall Security and Internationalization issues
7. Contrast ASP vs. JSP, Corba vs. Dcom, Jini, Soap, J2ME
8. Build XML and advanced Multi-tier Web Servers
9. Employ Sun One Studio, IBM WebSphere, Bea WebLogic
10. Complete Server projects using development tools
11. Present real-world Server 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 September 1, 2003 will require a late fee of \$25. No reservations will be accepted after September 6, 2003.

WHERE: Ramada Inn, 265 Route 3 East, Clifton, NJ. (Checks **should not** be mailed to this address)

WHEN: 10 Sessions, Wednesdays, September 17, 24, October 1, 8, 15, 22, 29, November 5, 12, 19, 2003, 6:30-9:00 PM.

COST: With textbook or notes: IEEE (& affiliate) members \$350; Non-IEEE members \$450.

CONTACT: Bhanu Chivakula -email b.chivakula@computer.org

REGISTRATION: Advanced Java Programming

Register and send checks via U.S. mail to: Bhanu Chivakula
19 Prestwick Way
Edison NJ 08820

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

Non-member

 email address 

IEEE /Associate 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 September 6, 2003. 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: _____

IEEE AWARDS RECEPTION

*North Jersey Section
May 4, 2003
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 4, 2003** from 3 to 6 PM. Tickets are \$35.00 each and include a complete prepaid, two-hour open bar, hors d'oeuvres, buffet, and dessert. Spouses and guests are welcome. We are limited to 90 attendees, so please make your reservations early.

Reservations are required by April 28, 2003. 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 28, 2003.** 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: _____
