

## NY/North Jersey-EMS: Computer Technology Court Wars

On April 21, 1993 the Engineering Management Society will present a seminar on "The Computer Technology War In The Courts: The Impact Of Intellectual Property Protection On Technology." The speaker will be Joel Miller, of West Orange, New Jersey, an attorney specializing in patent, trademark, copyright, trade secret, and unfair competition law. The location of this seminar will be announced at a later date.

### About The Topic

Lately, it seems as if virtually every electronics and software firm is going to court to sort out its rights over technology. Apple v. Microsoft, Atari v. Nintendo, Intel v. Advanced Micro Devices, Lotus v. Paperback, and Sega v. Accolade are but a few of the more recent disputes. These matters have concerned hardware, software, the look and feel of programs and user interfaces, and reverse engineering.

Why is this of importance to you - the engineering professional? Come to this meeting of the EMS and find out: How such matters affect the design, manufacturing, marketing, and sales process; How to protect your creative output; How to avoid invading someone else's turf. Mr. Miller will provide hand-outs during the meeting.

### About The Speaker

Joel Miller was formerly a patent examiner in the U.S. Patent and Trademark Office, patent counsel for the Kearfott Division of the former Singer Company, and an attorney with the New York-based law firm of Weil, Gotshal & Manges. He is the author of the *IEEE Spectrum* Legal Aspects column.

Over the years, Mr. Miller has secured patents and trademarks, negotiated intellectual property licenses, and participated in litigation concerning semiconductors, disk drives, and computer software. He has worked in a variety of technologies including communications, broadcasting, semiconductors, avionics, and computer hardware and software. He is a member of the American Bar Association, the American Intellectual Property Law Association, the Computer Law Association, the New Jersey State Bar Association, the IEEE, and the American Radio Relay League.

There will be a \$20 charge for attending the seminar. Hors d'oeuvres will be provided.

**Time:** 7:00 PM, Wednesday, April 21, 1993.

**Place:** Location to be announced.

**Information/Reservations:** Al Connelly, 49 Channing Drive, Ringwood, NJ 07456.

## North Jersey PES/IAS: Improvements In Distribution Feeder Protective Relaying

On March 31, 1993 the North Jersey Power Engineering/Industry Applications Society Chapters will present a talk on "Improvements In Distribution Feeder Protective Relaying." The speaker will be Jay Gosalia of GEC ALSTHOM T&D Inc.

### About The Talk

Historically, electromechanical disk type overcurrent relays have been the pre-dominant type of relay used for protection for feeder faults. These relays have provided adequate and reliable protection at a low cost and with low maintenance requirements. The need to replace or supplement these relays has recently begun to be considered due to many advanced features available with micro-processor-based technology.

This talk describes the features of the new microprocessor-based distribution relays and discusses some of the improvements in protection, operation and maintenance that may result from their use. Increased flexibility due to modular design allow uses ranging from stand-alone devices to completely integrated protection and control systems.

The discussion will also cover additional capabilities within the relay such as breaker failure, bus protection and "smart" load shedding. Advanced communication facilities provided in the relay allow a number of remote access options.

### About The Speaker

Jay Gosalia is Manager of Commercial Operations for the Protection and Control Division of GEC ALSTHOM, T&D Inc. Prior to GEC ALSTHOM, he worked as a Project Engineer for Asea, Brown Boveri. He received a BS in EE from M.S. University, India in 1974, and received his Masters degree in Computer Science from Manhattan College in 1984.

### All Welcome

### Free Pre-Meeting Buffet

Members and guests interested in the meeting topic are invited. Reservations are required for the complimentary pre-meeting buffet which starts at 6:00 PM followed by the meeting at 7:30 PM.

**Time:** 7:30 PM, Wednesday, March 31, 1993.

**Place:** JCP&L, Punch Bowl Room, 300 Madison Ave., Morristown, N.J.

### Reservations/Information:

Ken Oexle (JCP&L) (201) 455-8481; R.V. Rebbapragada (Ebasco) (212) 839-1473 or (201) 804-2011.

## NY-Consultants' Network: PC Networking Basics

On February 16, 1993 the IEEE NY Consultants' Network will meet 6:00 PM at the Con Edison Company, 16th Floor Press Room, 14th Street and Irving Place, NYC. The talk will be on "PC Networking Basics." This topic is rescheduled from the November 1992 meeting. The speaker will be Mr. John Conti, President of the Digicom Group.

This presentation deals with basics and fundamentals of connecting PC networks. This is important to the individual consultant who most likely will use a PC to aid in his practice. It is also important to our many network members who are engaged in aiding clients in this crucial area.

Plans for 1993 and the data base will be discussed. Volunteers are welcome and much needed. For information call Jim Wetterau (212) 321-1999 or Hulan Jack (212) 206-3049.

## VISION Project

The Power Engineering Society and Industry Applications Society NY/LI Chapter will meet on March 16, 1993 to hear a talk entitled "VISION—Automated Mapping And Facilities Management." The speaker will be Mr. Mike Casella, Con Edison's Senior Project Specialist, VISION Project. The VISION Project is an automated mapping and facilities management (AM/FM) vector based system. Utilizing UNIX workstations and Facilities Rulebased Application Model Management Environment (FRAMME), the system's capabilities will include analyses, map generation, work order processing and database management.

The meeting will take place 5:30-7:30 PM at Con Edison Bldg., 14th St. & Irving Place, 19th Floor Auditorium, NYC. Refreshments provided. For information: Ray Amara (212) 576-2941.

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# The IEEE Newsletter

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



## NJ Comp/Comm/LEO Soc: Infrared Image Sensors With Schottky-Barrier Detectors

On February 9, 1993, the North Jersey Section Computer/Communication/LEO Chapter will present "Infrared Image Sensors With Schottky-Barrier Detectors." The speaker at this meeting will be Professor Walter F. Kosonocky.

### About The Topic

The presentation reviews the development of infrared image sensors using Schottky-barrier detectors. They represent the most advanced technology for large-area high-density focal plane

arrays for many short/medium wave infrared applications. The key concepts of infrared imaging arrays will be reviewed including ways of reading out images. Also reviewed, will be the performance and imaging characteristics of the state-of-the-art PtSi Schottky-barrier detector focal plane arrays.

### About The Speaker

Professor Walter F. Kosonocky received his BS and MS in E.E. from Newark College of Engineering and his Eng ScD from Columbia University. Since 1987, Dr. Kosonocky has been a Distinguished Professor in the Electrical and Computer Engineering Department, NJIT, where he holds the Chair in Optoelectronics and Solid State Circuits. His present research activities include developments of special purpose sensors for infrared imaging applications. From 1955 to 1987, Dr. Kosonocky was employed by the David Sarnoff Research Center where he was responsible for the development of infrared image sensors. He is a member of the National Academy of Engineering, SPIE, SPSE, and a Fellow of the IEEE.

### All Welcome

You do not need to be an IEEE member to attend. Come and bring your friends.

**Time:** 7:30 PM, Tuesday, February 9, 1993.

**Place:** AT&T, Room, 6A106, Murray Hill, N.J.

**Information:** Henry Schaier, (201) 797-9409; or Howard Leach (201) 540-1283.

## North Jersey Section PACE: Mission America: Policy Development Summit

The February 11, 1993, meeting of the North Jersey Section's Professional Activities Committee for Engineers will discuss "Mission America: Policy Development Summit." The speaker will be Hans H. Ammann.

### About The Talk

Mission America is a reindustrialization initiative sponsored by the California Engineering Foundation (CEF) based on the following premise:

The U.S. must be a world leader in world market-driven, technology-fueled, quality products, created in high value-added enterprise, to increase domestic wealth; rewarding those responsible for wealth development to raise the standard of living, improve the quality of life, and preserve national independence.

A Summit Conference was held in Costa Mesa, California covering the following areas:

Entrepreneurship - The creation of new enterprise

Technological Innovation - The creation of new products

Industrial Management And Productivity - The operation of industrial firms

International Trade Policy - Relating the U.S. to other nations

Marketing - Strategies on markets and product criteria

Human Resources - The formal education and training process

Infrastructure - The background support of an industrialized economy

Science and Technology Policy - Public technology goals and strategy.

### About The Speaker

Hans Ammann is a Technical Supervisor in the Interconnection Technology Laboratory of AT&T Bell Laboratories. He is responsible for developing proprietary new tooling, metrology, modeling and analysis tools for improving manufacturing precision and the cost effectiveness of printed circuit boards and circuit packs. Mr. Amman holds a PhD and MS in Mechanical Engineering from Purdue University and a BSME from the University of Dayton.

**Time:** 7:30 PM, Thursday, February 11, 1993.

**Place:** JCP&L Co., 300 Madison Ave., Morristown, N.J.

**Further Information:** Robert Sinusas (201) 228-3941.

FEBRUARY  
JANUARY, 1993

52920 NJ  
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RIVERVALE  
630 MONTVIEW PL  
RICHARD F TAX (MIK921217)

FEBRUARY, 1993  
Volume 39, Number 8

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**NEWSLETTER STAFF**  
Editor ..... M.M. Perugini  
Business Manager ..... A.M. Beattie

**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 addressed to: The Newsletter, c/o Girard Associates, Inc., 6 Robert Terrace, P.O. Box 455, Mt. Arlington, N.J. 07856 (201) 398-5524.

**REPORT ADDRESS CHANGES TO:**  
IEEE Service Center  
445 Hoes Lane, P.O. Box 1331  
Piscataway, N.J. 08854-1331  
(908) 981-0060

It is not necessary to inform the North Jersey Section when you change your mailing address. The NEWSLETTER and other section mailings use a list provided by IEEE's national headquarters in New York. This means the Section has no need to maintain a mailing list or addressing plates. Section membership records are changed when Headquarters notifies us.

**SECTION OFFICERS**  
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**The North Jersey Section Executive Committee usually meets the first Wednesday (except holidays and December) of each month at 7 PM. These meetings are open to all members. Information on meeting agenda is available from Art Greenberg, Section Secretary at 785-7547.**  
**Elected Section Officers are listed above.**

North Jersey Section Activities  
FEBRUARY

**February 3, 1993**—"Very Long Distance Optical Communications—First Session In 1993 Optoelectronic Seminar Series"—NJIT, Center for Microwave and Lightwave Engineering, North Jersey Section IEEE & NJIT Graduate Student Assoc., 3:00-5:00 PM, NJIT, Rm., 1400, Guttenberg ITC, Newark, N.J. Dr. Whitman (201) 596-5709/3232.

**Feb. 3**—"North Jersey Section Executive Committee Meeting"—7:00 PM, Plant 11, GEC-Marconi, 164 Totowa Rd., Totowa, N.J. Al Connelly (201) 616-0755.

**Feb. 9**—"Infrared Image Sensors With Schottky-Barrier Detectors"—North Jersey Section Computer/Communications/LEO Chapter, 7:30 PM, AT&T, Room 6A106, Murray Hill, N.J. Henry Schaier (201) 797-9409.

**Feb. 10**—"New Developments In Interventional Ultrasound"—IEEE Metro EMBS, 7:30 PM, Rockefeller University, Tower Bldg., Rm. 305, 1200 York Ave., NYC. Joel Levitt (718) 891-6460.

**Feb. 11**—"Mission America: Policy Development Summit"—North Jersey Section PACE, 7:30 PM, JCP&L Co., 300 Madison Ave., Morristown, N.J. Robert Sinusas (201) 228-3941.

**Feb. 16**—"PC Networking Basics"—IEEE NY Consultants' Network, 6:00 PM, Con Edison, 14th Street & Irving Place, NYC. Jim Wetterau, (212) 321-1999.

**Feb. 17**—"Fundamentals Of Generator Protection"—PES/IAS NY/LI Chapter, 5:30-7:30 PM, Gibbs & Hill, 11 Penn Plaza, NYC. Hazem Huss (201) 822-1016.

**Feb. 18**—"Microwaves In Medical Applications: Microwave Balloon Angioplasty"-North Jersey Section MTT/AP Chapter, 7:30 PM, NJIT, ECC202 (Engineering & Computer Building, Newark, N.J. Dick Snyder (201) 492-1207.

**Feb. 18**—"The Manhattan Power System"—PES/IAS NY/LI Chapter, 5:30-7:30 PM, Con Edison Bldg., 19th Floor Auditorium, 14th St & Irving Place, NYC. Rick Miller (908) 688-2900.

**Feb. 24**—"Generator Circuit Breakers—Their Application And Recent Developments"—North Jersey PES/IAS Society Chapters, 7:30 PM, JCP&L Co., Punch Bowl Room, 300 Madison Avenue, Morristown, N.J. Ken Oexle (201) 455-8481.

**Feb. 25**—"Business Software For Small Business Owners"—Northern NJ IEEE Consultants' Network, 7:30 PM, GEC-Marconi Facility, 150 Parish Drive, Wayne, N.J. Jim Boyd (201) 584-0329.

**Upcoming Meetings**  
**March 1**—"Orthopaedic Prostheses 1993: Biomechanical Principles For Design Of Implants"—Metro EMBS & NY Academy of Medicine, 7:30 PM, NY Academy of Medicine 5th Ave. at 103rd St., NYC. Joel Levitt (718) 891-6460.

**Mar. 2-April 27 & March 4-April 29**—"Seminar On "C" Programming"—North Jersey Section, JCP&L, 300 Madison Ave., Morristown, N.J. John Baka (201) 455-8534.

**Mar. 10**—"Optoelectronics Industry Show & '93 Optoelectronic Seminar II—Optics In Computing"—NJIT, Center for Microwave and Lightwave Engineering, North Jersey Section IEEE & NJIT Graduate Student Assoc., 3:00-5:00 PM, NJIT, Alumni Center, Newark N.J. Dr. Whitman (201) 596-5709/3232.

**Mar. 16**—"The VISION Project—Automated Mapping and Facilities Management"—PES/IAS NY/LI Chapter, 5:30-7:30 PM, Con Edison Bldg., 19th Floor Auditorium, 14th St & Irving Place, NYC. Ray Amara (212) 576-2941.

**Mar. 25**—"Videoconference—Chaos, Fractals And Non-Linear Dynamics"—North Jersey Section, 12 noon-3:00 PM, Edward Williams College Lecture Hall, (FDU Hackensack Campus), 150 Kotte Pl. Hackensack, N.J. Richard Estock (201) 388-5110.

**Mar. 31**—"Improvements In Distribution Feeder Protective Relaying"—North Jersey Section PES/IAS Society Chapters, 7:30 PM, JCP&L, Punch Bowl Rm., 300 Madison Avenue, Morristown, N.J. Ken Oexle (201) 455-8481.

**Apr. 21**—"Computer Technology Court Wars"—NJ/NY Chapter of the Engineering Management Society, 7:00 PM (location to be announced later).

**May 18-20**—"1993 Vehicular Technology Conference"—Vehicular Technology Society, Meadowlands Hilton, Secaucus, N.J. M.I. Liechenstein (201) 471-0721.

Members and Non-Members Welcome  
PLEASE POST

North Jersey MTT/AP:  
Microwaves In  
Medical  
Applications

On February 18, 1993 the IEEE North Jersey Section MTT/AP Chapter will present "Microwaves In Medical Applications: Microwave Balloon Angioplasty." The speaker will be Dr. Arye Rosen of the David Sarnoff Research Center, Princeton, N.J.

**About The Talk**

Although coronary angioplasty is a routine procedure for the treatment of coronary artery obstruction, the use of this technique has left two major problems unresolved. The first is a less than optimal result, or acute occlusion. This can be caused by dissection, thrombus, or elastic recoil of the vessel. The second is restenosis, which occurs in approximately 30% of patients. Microwave Balloon Angioplasty (MBA) has been studied in an attempt to deal with these problems. In this presentation, a report will be made on the successful demonstration of MBA in animals in (1) reducing the rate of restenosis, (2) welding dissection, (3) treating intracoronary thrombus, and (4) creating a biological stent which can imply the elimination of elastic recoil.

**About The Speaker**

Arye Rosen joined the David Sarnoff

Research Center in 1967 and is Senior Member of the Technical Staff. He holds the title of Center Professor at the Center for Microwave/Lightwave Engineering of Drexel University, where he holds an appointment as Adjunct Professor in the Department of Electrical and Computer Engineer. He also holds the title of Associate in Medicine at Jefferson Medical College in Philadelphia. He has authored more than 100 technical papers, and holds 32 U.S. patents in the fields of engineering and medicine.

Dr. Rosen is a Fellow of the IEEE "For innovation in semiconductor devices and circuits for use in microwave systems and for microwave applications to medicine." He is a member of the NY Academy of Sciences; MTT-S Technical Committee Chairman on Biological Effects and Medical Applications; a member of the Editorial Review Board of *Microwave Journal*; Associate Editor of the IEEE *Journal of Light-Wave Technology*; a member of the Editorial Board of the IEEE, of *Microwave and Optical Technology Letters*, and of *Microwave and Guided Wave Letters*; he is a member of the MTT-S Technical Program Committee for Light-Wave Technology. He served on the Program Committee for Electro/International 1985 and 1991 and is a

Member-at-Large of the IEEE Health Care Engineering Policy Committee.

**Time:** 7:30 PM, Thursday, February 18, 1993.

**Place:** NJIT, ECC202 (Engineering & Computer Building), Newark, N.J.

**Reservations or Questions:** Dick Snyder (201) 492-1207.

Congratulations  
New  
Senior Members

Jack Alacchi  
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Melvin A. Lewis  
M.I. Liechenstein  
Robert J. Safranek  
E.J. Silverman

Advance to Senior Member grade. For information and an application contact Don Weinstein, Kulite Semiconductor, One Willow Tree Road, Leonia, NJ 07605-2239 (201) 461-0900, ext. 3106.

Professional  
Activities  
Committees for  
Engineers NEWS

By Richard F. Tax

**A BUREACRACY OUT OF CONTROL**

You and I are members of the North Jersey Section of the IEEE. We are also members of Region 1 of the IEEE. This year our Region, from Maine to New Jersey, New York State and all those east to the Atlantic, have seen a membership drop of 3.00%. A once proud Region of 50,000 members has seen, along with its members, hard times with a loss of jobs, capabilities and size. This is not something new. The trend has continued with a negative membership growth for more than five years. We in the North Jersey Section realized a loss of 3.38% of our members in 1992. New York Section lost 4.45%. Long Island lost 4.41%. I believe this is the worst for Region 1 and probably for the 6 Regions in the U.S. Five of the six U.S. Regions experienced losses ranging from 0.88 to 3.00%. Off-shore Regions 7 through 10 are growing. Is the bureaucracy satisfied? IEEE dues went up again and are over \$100 this year. Does this make sense?

Under my IEEE hat as Region 1, Area B, PACE rep. the bureaucracy requested that I ask the Section for additional funds to supplement the cost of sending Section representatives to the National PACE Conference. They wanted an additional \$250 per PACE representative. Here lies the irony. Our North Jersey Members alone contributed more than \$100,000.00 to the United States Activities Board (USAB) bureaucracy last year in our annual assess-

ment (dues). Shouldn't that include the cost of sending a North Jersey Section representative to the conference? There's more.

Our Region 1 Members contributed about \$1,000,000.00 to the USAB bureacracy in their annual assessment. This is about 25 percent of the USAB budget and they allocated only \$11,000 for Region 1 professional activities. Are we missing something? Our Section and Region officials are very concerned about these issues; are you? Stop by the Executive Committee meeting on the first Wednesday of each month. Call an officer (see masthead) listed in this Newsletter for more information about this meeting.

**MORE ON N.E.W.**

A prominent editor of one of the more popular electronic design trade publications told me that they received a release from IEEE about National Engineers Week. This informed and knowing individual said the thrust of IEEE's National Engineers Week promotional material was to recruit our nation's five year old children into science and engineering.

**AMERICAN ENGINEERING ASSOCIATION (AEA)**

AEA is circulating petitions to have Congress review and revise the IMMIGRATION BILL to reduce the number of engineers admitted to the United States. Call me at (201) 664-0803 for a copy of the Petition. Leave your name and address and ask for the AEA Petition if you get a recording.

**PARTICIPATION INVITED**

For Section and professional issues write to Richard F. Tax, P.O. Box 2012, River Vale, NJ 07675. Letters to the editor and officers are invited. We are all concerned about current issues and wish to encourage your participation.



Videoconference  
Calendar for 1993

The dates for the 1993 IEEE Seminars via Satellite Videoconferences have been announced. They are:

- March 25 - "Chaos and Fractals"
  - May 20 - "Delivering Products for the Global Marketplace"
  - June 17 - "Technical Currency of the Engineering Workforce"
  - September 30 - "Product Engineering"
  - October 28 - "2020 Vision: The Future of Engineering Technology"
  - December 2 - "Monte Carlo Analysis"
- Any questions should be directed to: Richard G. Estock (908) 388-5110.

North Jersey Section:  
Chaos And Fractals  
Videoconference

The first North Jersey Section sponsored videoconference of 1993 is being held on March 25th. The topic is "Chaos, Fractals And Non-Linear Dynamics" and the presenter will be Dr. Robert L. Devaney, Professor of Mathematics, Boston University.

Chaotic dynamical systems and fractal geometry are revolutionary new mathematical concepts that are having wide impact in all areas of science and engineering. These concepts provide major new tools for understanding and modeling natural phenomena.

The goal of this program is to introduce these new ideas in a manner that will allow scientists and engineers to use them in their own applications. The mathematical ideas will be described using a combination of computer experiments and video displays. Topics to be covered include: iteration; the transition to chaos; Feigenbaum's universality; fractals; and the Mandelbrot and Julia sets.

From this videoconference, attendees should learn how chaos and fractals have significantly changed science and engineering; how to recognize and understand chaotic behavior in the lab and in mathematical models; the new mathematics behind chaos and fractals; and how to use chaos and fractals for virtually any engineering application including computing, power distribution, signals and systems, communications, aerospace, weather forecasting, broadcast technology and many more.

A course prerequisite is either a Bachelor's degree or advanced undergraduate courses in engineering.  
**Admission FREE to IEEE Members**  
Admission is free to IEEE members; others may attend by completing an

application form for membership with payment of 1993 dues—\$95 for regular members, \$23 for students.

A set of course notes and copies of the viewgraphs will be available for a \$10 fee to those who order and pay for them ten (10) days in advance. These course notes are strongly recommended for all attendees.

**Time:** 12 noon - 3:00 PM, Thursday, March 25, 1993.  
**Place:** Edward Williams College Lecture Hall (FDU Hackensack Campus), 150 Kotte Place, Hackensack, N.J.  
**Directions:** Route 4 to Hackensack Ave. south, then 1st left onto Kotte Place.  
**Information/Order Conference Notes**  
Richard G. Estock (908) 388-5110.

North Jersey Section-PES:  
1993 Elected  
Officers

The PES Chapter of the North Jersey Section is pleased to announce the election of the following officers for the 1993 Executive Committee:

Chairman:	Vittal Rebbapragada Ebasco Services Inc. (201) 804-2011 (212) 839-1473 FAX (201) 804-2018 (212) 839-2571
Vice-Chairman:	Joseph Kane JCP&L Co. (201) 455-8456 FAX (201) 644-4231
Secretary & Treasurer:	Augie Franzoni ABB Power T&D Co. (908) 964-2130 FAX (908) 964-2150
Past Chairman	Thomas M. Piascik Public Service E&G Co. (201) 430-6692 FAX (201) 242-6074
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Program Chairman	Kenneth J. Oexle JCP&L Co. (201) 455-8481 FAX (201) 644-4231

All North Jersey Section PES members are invited to communicate to any of the Executive Committee members their suggestions and/or opinions and make 1993 an outstanding year for PES.

Metro EMBS:  
Orthopedic  
Prosthesis Design

On March 1, 1993 the IEEE Metropolitan Sections Engineering in Medicine and Biology Society and the New York Academy of Medicine Sections on Biomedical Engineering and Orthopedic Surgery will present "Biomechanical Principles For Orthopedic Prosthesis Design." The speakers at this meeting will be Dr. Edmond Chao, Dr. Rik Huiskes and Dr. Timothy Wright.

**About The Talk**  
With the development of stronger, more durable, lighter weight, bio-compatible materials, and the refinement of surgical procedures, replacement of damaged, degenerative, and maldeveloped joints has become relatively common place. With this increase in surgical procedures, there has been a concurrent burgeoning in the number and types of designs of prostheses available. Biomechanical studies have been used in development of many of the prosthesis designs, and as such are often quoted. The dilemma remains for many clinicians, however, as to which designs do what, and for whom are they best? Comprehensive, unifying biomechanical design principles are needed by clinicians to establish performance, evaluation, and prescription criteria, and by engineers to refine and develop improved designs.

**About The Speakers**  
Dr. Edmond Chao is a Professor of Mechanical Engineering and Orthopedic Surgery and Director of Research in the Department of Orthopaedic Surgery at Johns Hopkins University in Baltimore. Dr. Rik Huiskes is Professor of Musculoskeletal Biomechanics at the University of Nijmegen in The Netherlands, and is currently Visiting Professor of Orthopaedic Research at the University of Michigan.

Dr. Timothy Wright is Professor of Applied Biomechanics at Cornell University Medical School and Director of the Department of Biomechanics at the Hospital for Special Surgery in New York City.  
**Pre-Meeting Reception and Dinner**  
A reception and subscription dinner prior to the program will be held at the New York Academy of Medicine starting at 6:00 PM. Cost of the reception and dinner will be around \$38. **Reservations are requested prior to February 22, 1993.**

**Time:** 7:30 PM , Monday, March 1, 1993.  
**Place:** New York Academy of Medicine, Fifth Avenue at 103rd Street, NYC. (Limited free parking in NYAM enclosed lot at 2 East 103rd Street.)  
**Further Information/Reservations:** Office of Medical Education, NYAM (212) 876-8200, ext. 235; IEEE EMBS Joel Levitt (718) 891-6460 or John Frederick (212) 595-2599.

No. NJ Consultants' Network:  
Small Business  
Software

The topic at the February 25, 1993 meeting of the Northern N.J. IEEE Consultants' Network will be "Business Software For Small Business Owners." The speaker at this meeting will be Mr. Joshua Rothschild.

**About The Topic**  
Mr. Rothschild will discuss a variety of computer configurations and software availabilities for use in small business applications tailored to the consultant's needs. Some of the points that will be covered will be: Computer Systems and Networks; Accounting Software; Using the Spreadsheet; Project Management Software; and Information Managers and Databases.

**About The Speaker**  
Joshua Rothschild has 20 years experience in business and data processing and is a partner in a software development and computer network installer company. He is a member of the Certification Committee of LANDA - Local Area Network Dealers Association which provides standards for networking industry. He is also a member of the Computer Security Institute

**All Welcome**  
Members and non members are invited.

**Time:** 7:30 PM, Thursday, February 25, 1993.  
**Place:** GEC-Marconi Facility, 150 Parish Drive, Wayne, NJ. (Directions: From Intersection of Rte. 23 and Rte. 46, approx 1 mile east to Riverview Drive. North on Riverview for 1.5 miles to traffic light at golf course. Go straight on Valley Road to next light; turn left onto Parish Drive. Follow to "T"; left turn for 2 short blocks to Dey Rd. Left on Dey Rd. GEC entrance approx. 100 ft. on right side.  
**Information:** Jim Boyd (201) 584-0329.

North Jersey PES/IAS:  
Generator Circuit  
Breakers

On February 24, 1993 the North Jersey Power Engineering/Industry Applications Society Chapters will present a talk on "Generator Circuit Breakers—Their Application And Recent Developments." The speaker will be Robert G. Slawek of ABB, Monmouth Junction, New Jersey.

**About The Talk**  
Application of AC High Voltage Circuit Breakers is covered by ANSI Standard C37.013 and its use is found increasingly in the co-generation plants built by independent power producers and pumped storage hydro electric plants. In addition many nuclear plants have this equipment in the generator main leads to provide an alternate offsite AC power source.

The presentation will cover the following: Why Generator Circuit Breakers? (a) Economic (b) Safety & Reliability (c) Operational; Types of Generator Circuit Breakers; New Developments in Generator Breaker Technology; Unbalanced Load Condition; Applications and Installations.

**About The Speaker**  
Robert G. Slawek graduated from Newark College of Engineering (now NJIT) and received his MBA from Rutgers University. He has been employed with ABB since 1978 and is currently Marketing Manager for ABB Generator Breakers and Isolated Phase Bus.

**All Welcome**  
**Free Pre-Meeting Buffet**  
Members and guests interested in the meeting topic are invited. Reservations are required for the complimentary pre-meeting buffet which starts at 6:00 PM followed by the meeting at 7:30 PM.

**Time:** 7:30 PM, Wednesday, February 24, 1993.  
**Place:** JCP&L, Punch Bowl Room, 300 Madison Ave., Morristown, N.J.  
**Reservations/Information:**  
Ken Oexle (JCP&L) (201) 455-8481; R.V. Rebbapragada (Ebasco) (212) 839-1473 or (201) 804-2011.

NY/LI PES & IAS  
Two February  
Meetings

The Power Engineering Society and Industry Applications Society NY/LI Chapter will meet on February 17, 1993 to hear a talk entitled "Fundamentals Of Generator Protection." The speaker will be Patrick M. Kerrigan, Senior Application Engineer, General Electric Industrial and Power Systems Sales group. He will present a discussion on the fundamentals of generator protection with emphasis on the differences between the application of "traditional" and modern relay technology.

The meeting will take place 5:30-7:30 PM at Gibbs & Hill, 11 Penn Plaza, NYC. Refreshments provided. For information: Hazem Huss (201) 822-1016.

On February 18 the topic will be "The Manhattan Power System." The speaker will be William Coyne, P.E. of Con Edison. Mr. Coyne will make a slide presentation outlining the design of Manhattan's power system from the generating station, through transmission facilities, to the area substations from which multiple 13,000 volt feeders distribute power to local low voltage networks.

This meeting will take place 5:30-7:30 PM at the Con Edison Bldg., 14th St. & Irving Place, 19th Floor Auditorium, NYC. Refreshments provided. For information: Rick Miller (908) 688-2900.

Metro EMBS:  
New Developments  
In Interventional  
Ultrasound

On February 10, 1993 the IEEE Metropolitan Sections Engineering in Medicine and Biology Society will present "New Developments In Interventional Ultrasound." The speaker at this meeting will be David Vilkomerson, PhD, Vice-President R&D, EchoCath, Inc., Princeton, N.J.

**About The Talk**  
Ultrasonic imaging has become the leading medical diagnostic modality, capturing the largest monetary share of new purchases of medical imaging systems. Meanwhile, the most rapidly growing part of overall medical practice is minimally invasive medicine. Examples of this interventional medicine include balloon angioplasty of arteries, catheter-ablation for arrhythmias in the heart, and laparoscopic removal of the gall bladder.

Recent years have seen ultrasound gaining a role in interventional medicine. Ultrasound can guide catheters for angioplasty, artherectomy, or ablation, and needles for biopsy and therapy. Intraluminal ultrasound, using tiny ultrasound scanheads to view the inside of blood vessels and ducts, is being used to guide therapy as well as diagnose disease.

The present state-of-the-art in interventional ultrasound will be reviewed, and video tapes will be presented showing ultrasound guidance of catheters, biopsy needles, and forward-looking 3-D ultrasound images.

**Optional Pre-Meeting Get-Together**  
Optional informal pre-meeting get-together 6:30 to 7:30 PM in the cafeteria snack area (enter Tower, turn left).  
**All Welcome**  
All are welcome and there is no fee.

**Time:** 7:30 PM (6:30 PM pre-meeting get-together), Wednesday, Feb. 10, 1993.  
**Place:** Rockefeller University, Tower Bldg., Room 305, 1200 York Ave., NYC. Entrance gate 66th Street. Free Parking.  
**Further Information:** Joel Levitt (718) 891-6460; Sol Manber (516) 585-8200; John Frederick (212) 595-2599; Edna Feher (212) 757-0610.

# New Jersey Institute of Technology 1993 Optoelectronics Seminar Series and Industry Show

sponsored by  
**The Center for Microwave and Lightwave Engineering**  
**North Jersey Section IEEE & NJIT Graduate Student Association**

**Planning Committee:** M. Ettenberg, DSRC; E. Gordon, NJIT; H. Grebel, NJIT; W. Kosonocky, NJIT; R. Leheny, Bellcore; T. Li, AT&T; Richard Linke, NEC-Res. Inst.; S. Nagel, AT&T; E. Niver, NJIT; I. Reingold, Geo-Centers; G. Whitman, NJIT; J. Yardley, Allied Signal.

## I. VERY LONG DISTANCE OPTICAL COMMUNICATIONS

February 3, 1993, Wednesday, 3:00-5:00 PM, Room 1400, Guttenberg ITC

### Undersea Lightwave Systems

*Peter K. Runge, AT&T Bell Laboratories*

### Ultra Long Distance Transmission Using Erbium-Fiber Amplifiers and Solitons

*Linn F. Mollenauer, AT&T Bell Laboratories*

## II. OPTICS IN COMPUTING

March 10, 1993, Wednesday, 3:00-5:00 PM, Alumni Center

### Smart Pixels for Optical Interconnections and Processors

*Stephen R. Forrest, Dept. of Elec. Engrg., Princeton University.*

### Optoelectronic Technology for Computer Interconnections

*Donald J. Chanin, David Sarnoff Research Center*

## Optoelectronics Industry Show 2:00-6:00 PM, Alumni Center

## III. IMAGING SYSTEMS

April 21, 1993, Wednesday, 3:00-5:00 PM, Alumni Center

### From Telephone to Tele-Presence

*Kicha Ganapathy, AT&T Bell Laboratories*

### High Definition Display Systems

*M. Robert Miller, U.S. Army Electronics Technology and Devices Laboratory*

### Registration:

By mail, telephone or in person. Those who register in advance will be sent a map. There is no registration fee. Refreshments will be served.

### Directions:

Garden State Parkway to Exit 145, Route 280 East; take King Blvd. Exit 14A and turn right at the traffic light. Continue straight and after three traffic lights, turn right onto Central Avenue. Take the first left, Summit Street, into campus. Proceed to the guardhouse, the attendant will direct you to reserved parking.

From Route 280 West; take the King Blvd. exit, make a left at the foot of the ramp, go one block and make a left at the stop sign onto King Blvd. After four traffic lights, turn right onto Central Avenue. Follow directions above.

### For Information:

Contact Dr. Gerald Whitman (201) 596-5709/3232.

## '93 Optoelectronics

### Seminar I, February 3

#### "VERY LONG DISTANCE OPTICAL COMMUNICATIONS"

#### Undersea Lightwave Systems

*Peter K. Runge*

*AT&T Bell Laboratories*

**Abstract:** Digital undersea lightwave systems have been in service since 1988 across the Atlantic Ocean, and since 1989 across the Pacific Ocean. These high capacity communications systems have revolutionized international communications with respect to available system capacity and service quality. The presentation will address the technological improvements that were achieved with this first generation of undersea lightwave systems operating at 280 Mb/s per fiber pair and utilizing the 1.3 $\mu$ m transmission window in single mode optical fibers. The newest generation undersea lightwave system utilizes the more advanced 1.55 $\mu$ m transmission window and doubles the transmission capacity to 560 Mb/s per fiber pair. We will describe the technological advancements that made this increase possible. Presently, we are working on a third generation of undersea lightwave system technology which will utilize the revolutionary optical amplifier technology and operate at 5 Gb/s per fiber pair. These systems are expected to be ready for service beginning in 1995. We will describe this new system technology and the various improvements that were made to accomplish the unprecedented increase in capacity.

#### Ultra Long Distance Transmission Using Erbium-Fiber Amplifiers And Solitons

*Linn F. Mollenauer,*

*AT&T Bell Laboratories*

**Abstract:** Ultra long distance fiber optic transmission systems using inexpensive, broadband, erbium-fiber optical amplifiers to replace expensive, rate limiting, electronic regenerators are now under development. The highest bit rates are obtained in such an all-optical system by using the special, non-dispersive pulses known as solitons. Indeed, we have demonstrated error free (measured bit error rate < 10<sup>-10</sup>) soliton transmission over paths greater than 15,000 km at 5 Gbit/s, and the same over more than 12,000 km at 10 Gbit/s. The latter result, based on a two channel (2 x 5 Gbit/s) wavelength division multiplexing, is possible because solitons of different optical frequencies (unlike other pulses) are transparent to each other. As promising as it is, however, this result represents only the beginning: single-channel bit rates (for the transoceanic paths) are soon expected to reach, or even to exceed, 20 Gbit/s, while remaining fully compatible with extensive WDM.

## '93 Optoelectronics

### Seminar II, March 10

#### "OPTICS IN COMPUTING"

#### Smart Pixels for Optical Interconnections and Processors

*Stephen K. Forrest,*

*Dept. of E.E., Princeton University*

**Abstract:** A common problem confronting the realization of optoelectronic interconnection processors is the ability to both perform logical operations and rapidly and dynamically reconfigure the processor in a compact and simple manner. For example, while several "optical computers" have been demonstrated, they have suffered from a lack of reconfigurability and speed, thus limiting their ability to solve a wide range of computational problems. On the other hand, dynamic interconnections which have been proposed generally lack computational power. In our laboratory, we have recently demonstrated a fully integrated, optically powered, optoelectronic "smart pixel." This circuit has the ability to operate variously as an optoelectronic amplifier, bistable switch, inverter and latch. Due to the use of optical powering of the individual pixels, circuit layout complexity and reactive cross-talk between pixels are greatly reduced, thereby enhancing overall system performance. By making minor variations of that first circuit, we can employ it in a novel and very simple optoelectronic processor, which has the ability to both perform logic and dynamically route large 2D arrays of data. In this talk, we discuss both devices and architectures employing 2D arrays of smart pixels which can solve a wide range of computational and interconnection problems at very high rates.

#### Optoelectronic Technology for Computer Interconnections

*Donald J. Channin*

*David Sarnoff Research Center*

**Abstract:** The evolution of computing technology in the second half of the century dwarfs the progress in any other major technology within our lifetime. Since 1950, the amount of computing power one could buy for a constant dollar has increased by six orders of magnitude. Optics promises to be the next technology to drive this growth. How, why and when this will take place will be discussed. In this presentation we will consider the role of optics as an interconnect technology within computing systems. The role of silicon as the basis for logic and fast memory is likely to be unchallenged for a decade at least. However, the progress in faster processors and larger memories calls for corresponding increases in interconnect capability. This interconnect capability includes device packaging, signal transmission, communication protocol and overall interconnect architecture. As for silicon logic and memory, performance and cost together determine the capability of the interconnects to support the growth of the overall computer capability.

## IEEE North Jersey Section Seminar "C Programming"

Tuesdays, March 2 - April 27, 1993 & Thursdays March 4 - April 29, 1993 6:30-9:00 PM  
Jersey Central Power & Light Co., 300 Madison Avenue, Morristown, N.J.

The North Jersey Section is offering an evening course entitled "C Programming." In a field where everything changes, C endures as one of the most widely used programming languages because it is powerful, efficient, portable and permissive. This course will cover C from beginning to relatively advanced and will also emphasize C's philosophy or world view. Because the course will be based on ANSI C and because there are C compilers for most computers, the expertise will be applicable from PC through mainframe.

The course will also emphasize those aspects of C that carry over and become the basis of C++. Thus the course will be useful on its own and also be a preliminary to a C++ course planned for the following semester.

The topics listed below will be covered. The Tuesday instructor is Dr. Edward (Ted) Byrne owner of a software consultant business, Flatland Computer Specialities, Inc. The Thursday instructor is Mr. Donald Hsu, President, United Societies of Engineering and Science of New Jersey.

(1) - One pre-lecture about digital computers and programming in general.

(2) - Overview of C course: Philosophy of C vs other languages (ongoing), ANSI vs older C, Nature and constituents of a simple C program, C program examples (ongoing). Variables: Reserved words, Variables, declaration and definition, Parameters (variable constants).

(3) - Loops and Conditions: Compound statements, Relational operators, Looping (iteration): for, while, do, Conditionals: if, if else, else, Autoincrementing, precedence, Statement labels, goto.

(4) - Standard and Record I/O: Output to screen: printf, format, input from keyboard: scanf, format. Filing handling, Record output, Record input.

(5) - Subfunctions and arguments: names, arguments, return value, More on Variables: static, extern, local, auto. Main program arguments, Exit, Return levels.

(6) - Text and Libraries: Character data type, String data type, Characteristics of strings. Libraries: #include statement, library files, Common functions, #define, #ifdef, Conditional assignment.

(7) - Groups of similar and dissimilar data items and Debugging: arrays, structures, indexing, struct, item. Introduction to Industrial Strength C. Concept of levels of debugging, Assert, lint, Case tools.

(8) - Pointers: Concept of a pointer, Pointer (and other) arithmetic, Unions and Enums, Casts, Typedefs, Bit variables and operators.

(9) - Switch statement: Statement label, Case, Default, Break, State machine programs.

Class Size will be limited to a maximum of 25 with a minimum registration of 15. Early registration is recommended. Phone Reservations will **not** be accepted. Reservations accepted after February 11, 1993 will require an additional **late fee** of \$25. No reservations will be accepted after February 18, 1993.

**Where:** Jersey Central Power & Light Co., 300 Madison Avenue, Morristown, N.J.

**When:** Nine sessions, Tuesday and Thursday evenings, starting March 2, 1993 from 6:30 PM to 9:00 PM.

**Cost:** With Text Books and QuickC compiler, IEEE Members \$255; non-IEEE Members \$325.

With Text Books only, IEEE Members \$180; Non-IEEE Members \$250.  
**Contact:** Mr. John A. Baka at (201) 455-8534 (Business)

### Registration "C Programming"

**To:** Mr. John Baka, Distribution Engineering, JCP&L Company, 300 Madison Avenue, Morristown, NJ 07962-1911

Name \_\_\_\_\_ IEEE No. \_\_\_\_\_

Course Choice: Tuesday Evening \_\_\_\_\_ Thursday Evening \_\_\_\_\_

Affiliation \_\_\_\_\_ Phone No. \_\_\_\_\_

Address \_\_\_\_\_

Check if QuickC Compiler is needed or not Yes [ ] No [ ] Enclose required fee made payable to **"North Jersey Section IEEE"**

Signature \_\_\_\_\_