IEEE North Jersey Section Seminar

Introduction To Spread-Spectrum Communications And Radar

Basic Concepts and performance analysis for anti-jam, multiple-access, and covert operations; mod/demondulation; error codes and interleaving; pseudo-noise and frequency-hopping encoding; code and carrier acquisition and tracking; matched filters.

Lecturer: Donald M. Grieco,
C31 Group Head, Grumman Aircraft System Division

Dates: Four Saturdays, April 21, 28 and May 5, 12

Times: 9:00 AM to Noon

Place: Plessey Electronic Systems Corporation
15 Jackson Road, Totowa, N.J.

Cost: IEEE Member $ 85:00 Non-member $150:00

Copies of viewgraphs provided. Coffee and danish served.

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 April 8, 1990 will require an additionl late fee of $25.

Contact: Mr. John A. Baka at (201) 455-8534 (Business).

Registration for Course Starting April 21, 1990
"Introduction to Spread-Spectrum Communications and Radar"

To: Mr. John Baka, Distribution Engineering, Jersey Central Power & Light Co., Madison Avenue at Punch Powl Road., Morristown, NJ 07960.

Name _____ Title _____

Affiliation _____ IEEE No. _____

Address _____

_____ Phone No. _____

The IEEE
Newsletter

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

North Jersey MTT-AP:

Lightwave Communications

The April 5, 1990 meeting of the North Jersey IEEE MTT-AP Chapter will feature a talk on "Lightwave Communications." The speaker will be Reinhard H. Knerr.

About The Talk

Lightwave communications technology has now reached a fairly sophisticated level of maturity. Applications range from multi-mode short wavelength LED systems, which can transmit at kilobits per second and are used primarily for short range applications, to long-haul single-mode laser systems, which can transmit at the rate of gigabits per second. This talk will touch on the full range of lightwave communications applications. A short introduction to basic fiber technology will be given. Applications to optical data links and interfaces for point-to-point data networks, will be discussed as well as the extension of such technologies to lightwave local area networks (LANs). Different network architectures for lightwave LANs will be discussed, including the fiber distributed data interface (FDDI), and the manufacturing automatic protocol (MAP). Long haul digital systems will be mentioned, with special emphasis on the microwave aspects of gigabit systems, such as stripline and low noise GaAs preamplifier technology.

Coherent lightwave systems will be reviewed with emphasis on the equivalence between such systems and older microwave technology. Problems will be detailed which have been addressed in microwave systems and which are now being encountered in coherent lightwave systems and being solved by analogy to the old microwave technology. These include techniques such as isolation, internal and external modulation schemes, low noise amplification and phase lock techniques. Emphasis will be placed on heterodyne rather than homodyne systems.

About The Speaker

Reinhard H. Knerr is a native of Pirmasens, Germany. He received a PhD and an MS in EE from Lehigh University, and Dipl. Ing. degree from the Ecole Nationale Superieure d'Electrotechnique et d'Hydraulique in Toulouse, France and a BS degree from the Technical University of Aachen, Germany.

Knerr joined AT&T Bell Laboratories as a Member of the Technical Staff in 1968. He was involved in R&D on circulators, IMPATT power amplifiers, low noise and power GaAs FET amplifiers and satellite receivers. He has published extensively in the field and holds six patents.

Knerr has supervised work in lightwave passive components, integrated optics, and lightwave local area networks and lightwave data interfaces.

He is a Fellow of the IEEE and was editor of the *Transactions on MTT* from 1980 to 1982. He served as president of the MTT Society in 1986.

Free Buffet Dinner

There will be a free buffet dinner for attendees in the Lobby at 6 PM. **Reservations for the complimentary dinner are requested.**

Time: 7:15 PM, Thursday, April 5, 1990. (Pre-meeting buffet dinner at 6:00 PM. **Reservations required.**)
Place: ITT Auditorium (at the Tower), 500 Washington Ave., Nutley, N.J.
Information/Reservations: Dick Snyder (201) 492-1207; Willie Schmidt (201) 284-2255.

ELECTRO/90
Electronics Conference And Exposition May 9-11

More than 800 exhibitors are expected to occupy 1200 booths at Boston's Hynes Veterans Memorial Convention Center and the Bayside Exposition Center. Electro/90 officials project that approximately 20,000 persons will attend the event, representing design and test engineering management and staff from manufacturing firms. The 15th annual edition of Electro, the East Coast's largest and most comprehensive conference and exposition for design engineers in the electronic industry, will be held from Wednesday, May 9, through Friday, May 11, 1990.

The evolving concept of concurrent engineering will be the dominant focus of the Professional Program at Electro/90. The three-day, 49 session program will span the full range of today's product development cycle, with stress on the strategy of simultaneous development and the tools available for executing the strategy.

Additionally, the National Association of Purchasing Management (NAPM) will conduct a special one-day conference during the first day of Electro/90. The conference, open to members and non-members of NAPM, will offer discussion on such subjects as "Purchasing's Role in Corporate Success" and "Global Purchasing."

APRIL 1990
Volume 36, Number 10

Publication No: USPS 580-500
The North Jersey Section's "The IEEE Newsletter" is published monthly except June by The Institute of Electrical and Electronics Engineers, Inc. Headquarters: 345 East 47th Street, New York, N.Y. 10017-2394. $1.00 per member per year (included in annual dues) for each member of the North Jersey Section. Second-class postage paid at New York, N.Y. and at additional mailing offices. Postmaster send address changes to: "The IEEE Newsletter," 445 Hoes Lane, P.O. Box 1331, Piscataway, N.J. 08855-1331. USPS 580-500.

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, 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
(201) 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.

The North Jersey Section Executive Committee meets the first Wednesday (except holidays and December) of each month at 7 PM. These meetings (held at ITT, 500 Washington Ave., Nutley, N.J.) are open to all members. Information on each meeting agenda is available from David A. Dietsche, Section Secretary at (201) 579-1610.

Elected Section Officers are listed above.

NJ PACE:
Improve Your Technical Presentations

The North Jersey Section's Professional Activities Committee for Engineers will meet on Thursday, April 12, 1990. The topic will be "How To Avoid The Biggest Mistakes Technical Presenters Make." The speaker will be Brigid Moynahan, a professional presentations coach.

About The Program

In this presentation, Ms. Moynahan will discuss common reasons why technical speakers fail and recommend strategies we can use to improve our talks. Highlighted will be the particular strengths technical people bring to speaking situations. Participants are welcome to bring along questions about presentations and samples of their viewgraphs for a professional critique.

Moynahan, who has coached hundreds of engineers and researchers at AT&T Bell Labs, believes the idea that technical people can't communicate is a fallacy. "Technical experts have an appreciation for logic, order, and quality that can be put to excellent use in their presentations," says Moynahan, whose workshop: "Technical Presentations Workout," is the highest rated communications course at Bell Laboratories.

The problem with technical speakers isn't that they "can't communicate," she continues, "instead it's that they don't take the job of communicating seriously enough. They begin their technical careers without training in presentation skills—even though communicating in public is a critical part of the technical expert's work.

"Even the best technical education doesn't train you to be an effective public speaker; in fact, it can even give you bad habits," asserts Moynahan. "Most engineers and scientists learn to give talks by watching their professors. And how many of those professors really know how to convey information in an interesting and engaging way?"

About The Speaker

Brigid Moynahan heads her own communications training company called Moynahan & Associates in Montclair, New Jersey. She has provided communications services and training for Polaroid, American Management Associations, AT&T, Babcock and Wilcox, Burson-Marsteller Public Relations, Cohne & Wolfe, and Masteller Advertising.

Time: 7:30 PM, Thursday, April 12, 1990.
Place: ITT Auditorium, 500 Washington Avenue, Nutley, N.J.
Further Information: Robert Sinusas (201) 228-3941

North Jersey-IAS:
System Component Protection

On April 19, 1990, the North Jersey Section Industrial Application Society will host a presentation on "Component Protection, Current Limitation And The National Electrical Code." The speakers will be Robert Denis and Stephen Norako, both are District Sales Engineers in the New Jersey area for the Bussmann Division of Cooper Industries.

About The Talk

The presentation covers proper protection of electrical system components. They will discuss how higher interrupting ratings have been misinterpreted and do not in themselves assure proper downstream protection. The topic of withstand rating is discussed. The presentation is concluded with the concept of current limitation as an effective means of assuring proper component protection.

About The Speakers

Robert Denis has been with the Bussmann Division of Cooper Industries for the past four years. Prior to that he was a sales engineer with the Brown Boveri Electric Inc. company. He holds a BSEE from the Polytechnic Institute of New York.

Stephen Norako has been with the Bussmann Division of Cooper Industries for the past seven years. Prior to that he was a sales engineer with the Electrical Equipment Group of GTE Sylvania, Inc. He holds a BSEE from Fairleigh Dickinson University.

Pre-Meeting Dinner

The pre-meeting buffet dinner starts at 6:00 PM and the presentation begins at 7:00 PM.

Time: 7:00 PM, Thursday, April 19, 1990. (6:00 PM, buffet dinner.)
Place: ITT Auditorium, 500 Washington Ave., Nutley, N.J.
Further Information/Reservations: Vittal Rebbapragada, Chairman, IAS Chapter (201) 804-2011; Max C. Schramm (201) 887-1120.

Seminar On Radio Access Technology

On April 25, 1990, WINLAB, Rutgers University with IEEE Vehicular Technology Society participation, will present a seminar on "Radio Access Technology CDMA/Spread Spectrum" by Dr. W.C.Y. Lee, Pactel Cellular.

For information on the seminar call Elizabeth Normyle (908) 932-5954.

Executive Committee Report

The Executive Committee of the North Jersey Section of the IEEE has unanimously approved a motion to double the salaries they receive from the IEEE.

The increase will become effective on April 1, 1990. No income or Social Security taxes will be payed on this salary since the IEEE is a non-profit organization.

A. PRILLFULE

NY/LI Joint PES/IAS Technical Discussion Group:
Non Linear Load Problems

On April 19, 1990, the Industrial and Commercial Power System Technical Discussion Group of the joint PES & IAS Chapter New York and Long Island will sponsor a talk on "Non Linear Loads Mean Trouble." The speaker will be Arthur Freund, President of Noble Electrical Consultants, Inc.

About The Talk

With the installation of more and more solid state equipment such as computers, UPS units, motor control and other non linear loads, new problems are surfacing as a result of excessive line noise and harmonics, causing problems ranging from overheating to transformer failures.

All Welcome

There is no fee required and all are welcome. Refreshments will be served .

Time: 5:30-7:30 PM, Thursday, April 19, 1990.
Place: Con Edison, Conf. Rm. 1425, (14th Fl.), 4 Irving Place, NYC.
Further Information: Rick Miller (201) 688-2900.

Boston IEEE-AESS:
Course On Aspects Of Modern Radar

The Boston IEEE Aerospace and Electronics Systems Society will sponsor a one-day course on "Aspects Of Modern Radar." The course will take place at Old Colony Inn, (Best Western), Old Alexandria, Virginia (near Radar-1990 Conference location) on Friday May 11, 1990, 8:00 AM to 5:30 PM.

Topics will cover: Trends in radar to the year 2000 and beyond; MMIC, uiltra-low sidelobe antennas, systolic and residue arithmetic signal processors, 64 degrees of freedom Givens sidelobe canceler, monopulse techniques, millimeter wave radar, doppler weather radars, target cross section prediction and reduction.

Fee for the course will be: $180 for IEEE members; $195 for non-members. Includes $79 completely **new book** "Aspects of Modern Radar," Dr. Eli Brookner (Ed.).

For information contact: Dr. Eli Brookner, Raytheon Company, Wayland, MA 01778 (508) 440-5636 or (617) 862-7014.

PACE Committee Meets Monthly

The PACE Committee meets on the second Thursday of every month at the ITT Auditorium, 500 Washington Avenue, Nutley, N.J. (near the the ITT Tower) at 7:30 PM. Our Section Executive Committee meets there on the first Wednesday of every month (except in December) at 7:00 PM. Any questions or comments will be well received. Contact Richard Tax at (201) 664-0803 (after 7:00 PM) or write to R. Tax, 630 Montview Place, River Vale, N.J. 07675.

North Jersey-IAS:
Power Quality Monitoring

On May 17, 1990, the North Jersey Section Industrial Application Society will host a presentation on "Power Quality Monitoring." The speaker will be Mr. Vladimir Basch, Dranetz Technologies, Inc., Edison, New Jersey.

About The Talk

Industrial controls, computers, and other electronic devices are very sensitive to imperfect, "dirty", AC power. Mr. Basch will talk about the potential impacts of poor AC power quality, practical ways to measure and analyze AC power quality, and various remedial options.

About The Speaker

Vladimir Basch is National Sales Manager at Dranetz Technologies, a leading designer and manufacturer of electric power monitoring instruments and systems. He is a member of the IEEE and is an active participant in the IEEE P1100 working group "Recommended Practice For Powering And Grounding Of Sensitive Electronic Equipment." He holds an MSEE from the Polytechnical Institute of Bucharest, Romania, and an MBA from Fairleigh Dickinson University.

Pre-Meeting Dinner

The pre-meeting light buffet dinner starts at 6:30 PM prior to the technical presentation.

Time: 7:30 PM, Thursday, May 17, 1990. (6:30 PM, buffet dinner.)
Place: ITT Auditorium, 500 Washington Ave., Nutley, N.J.
Further Information/Reservations: Vittal Rebbapragada, Chairman, IAS Chapter (201) 804-2011; Max C. Schramm (201) 887-1120.

Global Networking In The 1990s

The New York Chapter of the IEEE Communications Society will hold its 79th Semiannual Seminar on "International Telecommunications: Global Networking In the 1990s." The seminar will take place on Tuesday, April 24, 1990 from 9:00 AM to 5:00 PM at the United Engineering Center, 345 East 47th Street, NYC.

The increasingly international nature of commercial activity underscores the importance of global telecommunications to businesses worldwide. This seminar will explore the global networking experiences of providers and users, and discuss the emerging international telecommunications environment of the 1990s. For more information contact Bert Lindberg at (212) 825-1527, Bob Puttre at (914) 683-3151, or Larry Bolick at (201) 467-9650.

Date: April 25, 1990

Time: 7 PM—RECEPTION
8 PM—DINNER

Place: CHANTICLER, Millburn
376-2222

Banquet Menu

Reception - 7:00 PM
Tart Shells Portuguese
Stuffed Mushrooms Graham
Broiled Chicken Livers Monticello
Aubergine Supreme
Pastries Hors d'Oeuvres Assorte
Contonese Egg Rolls - Sauce Anglaise
Frankfurter Puffs
Veal Souffles a la Oscar
Danish Liver and Potato Souffles
Quiche Lorraine
Shrimps Soto Mayer - Sauce Romanoff
Miniature Pizzas
Baked Clams Crosettie
Clams on Half Shell
Oysters on Half Shell
Veal Scallopini a la Tiberius
Chicken Hawaiian
Petite Stuffed Cabbage - Hungarian Style
Baked Stuffed Shells - Sauce Marinara
Rice Pilaf
Fresh Chinese Vegetables
Chinese Style Rice
Baked Sugar Cured Ham
Petite Party Breads
Unlimited Cocktails
Wine and Beer

Dinner - 8:00 PM
Salad Valencia
Shredded Gorgonzola Cheese Passed
Imported Flat Breads
Chateaubriand
Broccoli Italienne
Glazed Belgian Carrots
Old Fashioned Potatoes
Petite Dinner Rolls/Butter
Coffee/Cream
Chocolate Mousse
(Liquor during and after dinner - individual responsibility).

SECTION BANQUET - APRIL 25, 1990

A time to relax, unwind and enjoy —
A time to pay tribute to our New Fellows —
A time to honor our new Senior Members —
YES it's time for the Annual Section Banquet

Following the enthusiastic response of those who attended the Banquet the past twelve years, we are returning to the Chanticler in Millburn. The affair is scheduled for Wednesday evening, April 25, 1990. Tickets are $45.00 each for Member and one guest, $60.00 each for non-members, and includes a complete prepaid Cocktail Hour preceding dinner. Spouses and guests are welcome.

Reservations required by April 16, 1990. Complete the reservation form below and return it with your payment. If any additional information is required concerning the Banquet, contact Anne Giedlinski at 455-8556.

Inquire about corporate tables.

Use this form for Banquet reservations enclosing a stamped self-addressed envelope. **Reservations required by April 16, 1990.** Mail reservation request to:

Anne Giedlinski
299 Brooklake Road
Florham Park, NJ 07932

Enclosed is_____Please forward _____ tickets at $45.00 each for Member and one guest; $60.00 each for non-member (make checks payable to **North Jersey Section IEEE**) to:

Name:_____

Address:_____

_____Zip _____

I would like to share a table (seating_____) with the following:

_____

_____

_____

_____

_____

North Jersey Section Activities
APRIL

April 4, 1990--"Optoelectronic Seminar III and Optoelectronic Industry Show"--North Jersey Section IEEE & Graduate Student Assoc., NJIT, NJIT Alumni Center, 323 Martin Luther King Jr. Blvd., Newark, N.J. Dr. Gerald Whitman (201) 596-3232/3512..

April 5--"Lightwave Communications"--North Jersey IEEE MTT-AP Chapter, 7:15 PM, ITT Auditorium, 500 Washington Ave., Nutley, N.J. **Reservations required for complimentary buffet dinner.** Dick Snyder (201) 492-1207.

April 12--"PACE: How To Avoid The Biggest Mistakes Technical Presenters Make"--North Jersey Section's Professional Activities Committee for Engineers, 7:30 PM, ITT Auditorium, 500 Washington Ave., Nutley, N.J. Robert Sinusas, (201) 228-3941.

April 18--"An Electromagnetic Theorist's View Of Fields And The Human Body"--Joint Metropolitan Section Engineering in Medicine and Biology Society/Power Engineering and Industrial Applications Society NY/LI Chapter and the Society for Social Implications of Technology, 7:30 PM, Rockefeller University, Rm. 305, Tower Bldg., York Ave., NYC. Joe Bogovic (212) 241-8032.

April 19--"Component Protection, Current Limitation And The National Electrical Code"--North Jersey Section Industrial Application Society, 7:00 PM, ITT Auditorium, 500 Washington Ave., Nutley, N.J. Vittal Rebbapragada, (201) 804-2011.

April 19--"Non Linear Loads Mean Trouble"--Industrial and Commercial Power System Technical Discussion Group of the Joint PES/IAS Chapter NY/LI, 5:30-7:30 PM, Con Edison, Conference Rm. 1425, 4 Irving Place, NYC. Rick Miller (201) 688-2900.

April 21--"Neural Networks Conference"--LI Section/Student Activity Committee & NY Institute of Technology, 10:00 AM-5:00 PM, NY Institute of Technology, Student Center, Route 25A, Old Westbury. Prof. Robert Hong (516) 921-4446.

April 21, 28 & May 5, 12--"Seminar: Introduction To Spread-Spectrum Communications And Radar"--IEEE North Jersey Section, Four Saturdays, Plessey Electronic Systems Corp., 15 Jackson Road, Totowa, N.J. John Baka (201) 455-8534.

April 24--"How To Manage Your Time So It Does Not Manage You"--New York/North Jersey IEEE Engineering Management Society, 7:00 PM, Stevens Institute of Technology, Stevens Center, 4th Floor, Hoboken, N.J. Al Bottani (201) 265-7797.

April 24--"79th Semiannual Seminar: Global Networking In The 1990s"--NY Chapter IEEE Communications Society, 9:00 AM-5:00 PM, United Engineering Center, 345 East 47th Street, NYC. Bert Lindberg (212) 825-1527.

April 25--"Seminar On Radio Access Technology"--WINLAB, Rutgers University with IEEE Vehicular Technology Society. For information call Elizabeth Normyle (908) 932-5954.

Upcoming Meetings

May 9-11--"ELECTRO/90"--Hynes Veterans Memorial Convention Center and the Bayside Exposition Center, Boston.

May 11--"One-Day Course On Aspects Of Modern Radar"--Boston IEEE AESS, Old Alexandria, Va. Dr. Eli Brookner (508) 440-5636.

May 17--"Power Quality Monitoring"--North Jersey Section Industrial Application Society, 7:30 PM, ITT Auditorium, 500 Washington Ave., Nutley, N.J. Vittal Rebbapragada (201) 804-2011.

SPECIAL SECTION BANQUET NOTICE

Reserve the evening of April 25th for North Jersey Section Annual Dinner and Awards Program. Details and reservation information in this Newsletter.

Members, Student Members and Non-Members Welcome
PLEASE POST

Optoelectronic Seminar Session III And Optoelectronic Industry Show

The Center for Microwave and Lightwave Engineering at NJIT, the North Jersey Section IEEE and the Graduate Student Association, NJIT present Session III of the New Jersey Institute of Technology Optoelectronic Seminar Series. This session "Frontiers Of Optoelectronic Opportunities" will take place April 4, 1990

In addition to the Seminar, the NJIT Optoelectronics Industry Show is being held simultaneously. The optoelectronics industry will be exhibiting their latest products. The Hewlett-Packard Co., Anritsu Inc., and Tektronix Inc., are among the participants. The addition of the show requires the following re-scheduling:

Location:	The NJIT Alumni Center, 323 Martin Luther King Jr. Blvd., Newark, N.J.	
Industry Show:	Lounge	2:00 - 7:00 PM
Seminars:	Seminar Room	3:00 4:00 PM, 5:00 - 7:00 PM

Seminar III. Frontiers of Optoelectronic Opportunities April 4, 1990 - 3-4 PM & 5-7 PM

"Future Optical Communications"

William F. Brinkman, AT&T Ball Labs

Communications via optical fiber has grown at a rapid rate with long distance companies installing fiber networks and undersea cable around the world. The transmission rate per fiber has increased to well over a gigabit/sec. Optical communications will continue along this path, perhaps eventually reaching terabits/sec. It will also broaden the scope of its applications until optical networks reach into the home. These latter applications will depend on the reduction of component costs. The components needed to get high bit rates of the future will be reviewed and the challenges outlined. Finally, if optics is going to reach beyond transmission, optical switching and other applications must be realized. The potential for these applications will be discussed.

William F. Brinkman received his BS and PhD (physics) degrees from the University of Missouri in 1960 and 1965, respectively. He joined Bell Laboratories in 1966. In 1972, he became the head of the Infrared Physics and Electronics Research Department, and in 1974 became the Director of the Chemical Physics Research Laboratory. From 1984 to 1987 he was Vice President of Research at Sandia National Laboratories in Albuquerque, NM. Since 1987, Dr. Brinkman has been the Executive Director of Physics Research at AT&T Bell Labs in Murray Hill, N.J. He has worked on theories of condensed matter and spin fluctuation in metals and other highly correlated Fermi liquids.

Dr. Brinkman is a Fellow in the American Association for the Advancement of Science. He was Chairman of the National Academy of Sciences' Physics Survey and Solid-State Sciences Committee. Dr. Brinkman is a member of the National Academy of Sciences.

"Optical Probing Of High-Speed Electrical Signals"

Jay M. Wiesenfeld, AT&T Bell Labs

Advances in Electronic device and integrated circuit (IC) technology have led to the development of ultra-high speed devices and ICs operating at multi-gigahertz clock frequencies. The measurement of electrical waveforms produced by and internal to such devices is beyond the bandwidth capability of conventional electronic instrumentation. Moreover, rather than relying solely on simulations to evaluate circuits, it is important to have a technique that actually measures waveforms internal to such high-speed ICs. New optical techniques have been developed to resolve ultra-high speed electrical waveforms. Two such techniques that use semiconductor photonic devices will be discussed: electro-optic sampling, which is a voltage-sensitive technique, and phase space absorption quenching (PAQ), which is a charge-sensitive technique.

Jay M. Wiesenfeld received his AB and AM degrees in chemistry and physics from Harvard University in 1972 and his PhD degree in chemistry from the University of California, Berkeley, in 1978. He has been at AT&T Bell Laboratories since 1978, first as a postdoctoral fellow and presently as a Member of Technical Staff in the Photonics Research Laboratory. His current work involves ultrashort optical pulse generation, study of lasers, optical amplifiers, and photodetectors for ultra-high speed optical communications, optical probing of electrical circuits, and study of transient behavior in optically excited materials.

"Squeezed Light"

Bernard Yurke, AT&T Bell Labs

A number of laboratories have generated aqueezed light, a form of light that in some of its aspects has less noise than coherent light coming from a well-stabilized laser. Here, we will describe what squeezed light is, how it is generated, and how it is detected. Possible applications of squeezed light to interferometry and other forms of sensitive and precision measurement will be described.

Bernard Yurke received his PhD from Cornell University in 1983. His thesis work consisted of experimental studies of superfluid 'H and spin-polarized hydrogen. Upon completing his thesis work he became a Member of Technical Staff in the Solid-State and Quantum Physics Research Department at AT&T Bell Laboratories in Murray Hill, N.J. There he is pursuing experimental and theoretical work in quantum optics and electronics, both at optical and microwave frequencies. His efforts have concentrated on the generation and detection of nonclassical states of the electromagnetic field called squeezed states.

Registration Information

There is no charge for the Seminar Series or the NJIT Optoelectronics Industry Show. Refreshments will be served. Reserved Parking in Lot #7, Directions available.

For Information

For further information call any member of the NJIT Center for Microwave and Lightwave Engineering: Haim Grebel (201) 596-3533; Walter Kosonocky (201) 596-3538; Edip Niver (201) 596-3542; Gerald Whitman (201) 596-3232.

Metropolitan EMBS, NY/LI PES/IAS & Society for Social Implications of Technology:

Electromagnetic Fields And Health Effects

On April 18, 1990, the IEEE Metropolitan Section Engineering in Medicine and Biology Society, Power Engineering and Industrial Applications Society NY/LI Chapter, and the Society for Social Implications of Technology, will present a program on "An Electromagnetic Theorist's View of Fields And The Human Body - (Electromagnetic Fields And Health Effects)." The speaker will be Dr. Raines, Raines Electromagnetics.

About The Talk

The subject of electromagnetic fields and the human body is controversial and emotionally charged, especially for bewildered citizens living near emitters such as power lines and antennas. It is also an interdisciplinary subject requiring the cooperation of at least two groups who otherwise seldom associate, namely, electromagentic engineers and biologists/research physicians. What sort of predictions could an electromagnetic theorist make concerning the complex human body? How might these predictions clash or reinforce the experimental work performed so far? In this talk, we will look at some analogies between electromagnetic devices and the body, perform some (perhaps outrageous) computations, and hopefully provoke a lively discussion.

There will be a panel discussion period following talk. The Panel Speaker will be Sally Faith Dorfman, MD, Commissioner of Health for Orange County, New York.

About The Speaker

Dr. Raines has specialized in antennas and arrays, electromagnetic scattering, radar cross sections, and radio wave propagation since starting Raines Electromagnetics in 1972. Since 1978 he has been solicited by Government agencies, commercial broadcasters, and private groups to perform computations, measurements, and to provide testimony concerning the health effects of electromagnetic fields.

Dr. Raines received his BS in Electrical Science and Engineering from MIT, his MS in Applied Physics from Harvard University, and his PhD in Electromagnetics from MIT, in 1969, 1970, and 1974, respectively. While at MIT, he taught a laboratory course in bioelectronics under Professors Steven K. Burns and Roger Mark. This is where he first became interested in electromagnetics and the body. Prior to the meeting there will be an informal get-together at 6:30 PM in the Tower Building Cafeteria, 1st Floor, Rockefeller University. Vending machine sandwiches, salads and desserts available. Hot drinks supplied. Lecture starts at 7:30 PM.

Time: 7:30 PM, Wednesday, April 18, 1990.
Place: Rockefeller University, Room 305, Tower Bldg., York Ave., (Entrance at 66th St. Gate), NYC. Parking Available.
Further Information: Joe Bogovic (212) 241-8032; Edna Feher (212) 757-0610.

NY/North Jersey-EMS:

How To Manage Your Time

The New York/North Jersey IEEE Engineering Management Society will meet on April 24, 1990 to hear a discussion on "How To Manage Your Time So It Does Not Manage You." The speaker will be Brian Horan.

About The Talk

Time tested techniques of time management which are universally applicable and which are practiced, in one form or another, by all successful people will be discussed.

About The Speaker

Brian Horan is Vice President and Director of Training for the Union Bank of Switzerland, North America. He is a nationally recognized speaker and seminar leader. Mr. Horan regularly gives presentations on topics such as, Management, Communications Skills and Entrepreneurship. In addition to corporate audiences, he regularly speaks on these subjects to student audiences. Recent engagements include: Executive MBA Program, Rutgers Graduate School of Management, Stevens Institute of Technology, and Indiana University, Graduate School of Business.

Refreshments will be served 6:30-7:00 PM.

Time: 7:00 PM, Tuesday, April 24, 1990.
Place: Stevens Center, 4th Floor, Stevens Institute of Technology, Hoboken, N.J.
Further Information: Al Bottani (201) 265-7797.

NY/NJ-EMS: Calendar

May 15—Joint meeting with the Program Management Institute. This will be a dinner meeting.

June 19— Speaker will be from the Federal Emergency Management Agency.

Sept. 18—Dr. Deborah Kezsbom will speak on "The Engineer As A Manager."

Oct. 23, Nov. 20—To be announced.

The Engineering Management Society continues to look for volunteers to help in the running of the Society. Anyone interested should call Al Bottani on (201) 265-7797 or Deborah Kezsbom on (201) 871-1640.

LI Section/Student Activity Committee & New York Institute of Technology:

Neural Networks Conference

On April 21, 1990, the IEEE Long Island Section, its Student Activity Committee and the New York Institute of Technology will sponsor a "Student/Professor Conference On Neural Networks." Dr. Harold H. Szu of the Naval Research Laboratory, will be the Keynote Speaker. His talk, "Neural Network Computer" will review learning algorithms and architectures, cover R&D directions on the horizon, including applications of self-architectures and general purpose Neural Network computers, and compare various hardware implementation schemes such as optics, VLSI, and Hi T_c Superconductors.

Artificial Neural Networks (ANN) is now considered one of the top priority technologies in the world. With the new discoveries made last year, there is a possibility that ANN is about ready to take off and possibly take its place alongside such technology as supercomputers in the near future. We have solicited papers from students, undergraduates and graduates, and also coauthored papers by student/professor from universities of nearby states. These papers are definitely of "professional" quality. In fact some are DARPA related, even funded by DARPA. For example, the Ivy League universities of Yale and Columbia will be presenting five papers, at least two of which represent "Revolutionary" breakthroughs for this technology. ANN is being used for a multitude of applications (e.g. sensor processing, financial decision making). Approximately sixteen papers will be presented and included in a Proceeding for the attendees. Other universities include CCNY, Lehigh University, NYIT, Polytechnic University, Rutgers University, and SUNY at Stony Brook. Awards of $50 and IEEE certificates will be given to the best paper in each of the three categories.

Registration Fee Required

The conference will start at 10:00 AM and finish by 5:00 PM. A box lunch will be served during which Dr. Szu will give his talk. The registration fee for non-authors will be $10.00 for students and $20.00 for non-students to cover the cost of the Proceeding, box lunch, etc.

Time: 10:00 AM-5:00 PM, Saturday, April 21, 1990.
Place: New York Institute of Technology Student Center (Dairy Barn), Route 25A, Old Westbury.
Information: Prof. Robert Hong (516) 921-4446; Prof. Frank Li (516) 686-7970; Susan Hobbie (516) 696-6493.

Committee, and is an active participant in CCITT activities regarding electromagnetic compatibility. He holds a Master's Degree in Electrical Engineering from the Polytechnic University of New York.

Richard B. Robrock

Richard Robrock is Assistant Vice President of Network Services Systems at Bell Communications Research. Prior to assuming this position in 1984, he was Director of Network Administration and Directory Systems for Bell Laboratories. He began his professional career with Bell Laboratories in 1967 engaging in Applied Research in the area of high-speed semiconductor devices. He subsequently managed the development of digital multiplex and terminal equipment for coaxial, digital radio and fiber transmission systems; helped define the synchronization plan for the Digital Data System; and managed the development of Time Assignment Speech Interpolation (TASI) Systems. Mr. Robrock then spent six years in the telephone switching field, managing the development of software for Electronic Switching Systems, including the 2/2B ESS, 3 ESS, 4 ESS, and 5 ESS switches.

He received a BS in Engineering Science and an MS and PhD in Electrical Engineering from Case Institute of Technology. He holds six patents and has published three dozen papers on the Intelligent Network, switching, transmission and semiconductor devices. He chairs the Software Development and Services Committee at Bellcore, is a Fellow of the IEEE, and is a member of Tau Beta Pi and Sigma Xi. In 1988, he attended the MIT Alfred P. Sloan School Program for Senior Executives.

Virginia C. Sulzberger

Virginia C. Sulzberger is currently the Director-Engineering at the North American Electric Reliability Council (NERC), Princeton, New Jersey, where she coordinates the planning and engineering activities of NERC's Engineering Committee and its subgroups. She works primarily with the group that annually reviews and assesses the overall reliability of the future ten-year generation and transmission supply plans of virtually all of the electric utility systems in the United States and Canada.

Prior to joining NERC in 1985, Mrs. Sulzberger was a Senior Planning Advisor at Exxon Enterprises, the new business diversification arm of Exxon Corporation. During her eight years at Exxon, she performed technology assessments and business plan evaluations of new venture investment opportunities in advanced energy systems and renewable energy technologies.

Mrs. Sulzberger began her career at Public Service Electric and Gas Company (PSE&G), Newark, New Jersey, in the electric system planning and development department. During her fourteen years at PSE&G she held various engineering and management positions, advancing to Manager of Transmission Planning, Manager of the Advanced System Planning Division, and Manager of the Advanced Development Division in PSE&G's research and development department.

While at PSE&G, she began her activities in the development of methods and their application for calculating electric transmission system and substation reliability.

Mrs. Sulzberger holds a BSEE, Honors Group, and a MSEE, cum laude from Newark College of Engineering (now the New Jersey Institute of Technology). She is a member of the Eta Kappa Nu and Tau Beta Pi national engineering honor societies.

Active in the IEEE Power Engineering Society (PES) throughout her career, Mrs. Sulzberger currently is a member of the PES Executive Board and serves as Chairman of its Constitution and Bylaws Committee. She also currently serves on the Editorial Board of PES's "Computer Applications in Power" magazine. She has been a Senior Member of IEEE since 1975.

Mrs. Sulzberger is only the second woman to be named an IEEE Fellow in the field of power system engineering, and the first since 1949.

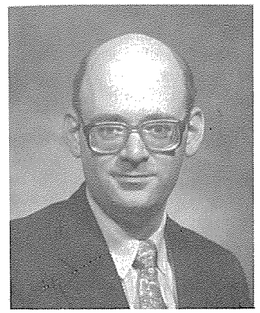
Carl-Erik W. Sundberg

Carl-Erik W. Sundberg was born in Karlskrona, Sweden. He received the MSEE and Dr. Techn. degrees from the Lund Institute of Technology, University of Lund, Lund, Sweden, in 1966 and 1975, respectively.

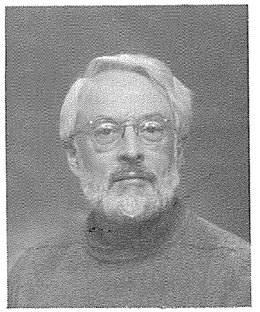
Currently he is a member of the Technical Staff at AT&T Bell Laboratories, Signal Processing Research Department, Murray Hill, N.J. Before 1976 he held various teaching and research positions at the University of Lund. During 1976, he was with the European Space Research and Technology Centre (ESTEC), Noordwijk, The Netherlands, as an ESA Research Fellow. From 1977 to 1984 he was a Research Professor (Docent) in the Department of Telecommunication Theory, University of Lund. He has held positions as Consulting Scientist at LM Ericsson, SAAB-SCANIA, Sweden and at Bell Laboratories, Holmdel. His consulting company, SUNCOM, has been involved in studies of error control methods and modulation techniques for the Swedish Defense a number of private companies and international organizations. His research interests include source coding, channel coding, digital modulation methods, fault-tolerant systems, digital mobile radio systems, spread-spectrum systems, digital satellite communications systems, and optical communications. He has published over 65 journal papers and contributed over 90 conference papers. He holds 12 U.S., Swedish and international patents. He is coauthor of *Digital Phase Modulation*, (New York: Plenum, 1986) and *Topics in Coding Theory*, (New York: Springer-Verlag 1989).

Dr. Sundberg has been a member of the IEEE European-African Middle East Committee (EAMEC) of COMSOC from 1977 to 1984. He is a member of COMSOC Communication Theory Committee and Data Communications Committee. He has also been a member of the Technical Program Committees for the International Symposium on Information Theory, St. Jovite, Canada, 1983, and for the International Conference on Communications, ICC'84, Amsterdam, The Netherlands. He has organized and chaired sessions at a number of international meetings. He has been a member of the International Advisory Committee for ICCS'88 and ICCS'90 (Singapore). He served as Guest Editor for the *IEEE Journal on Selected Areas in Communications* in 1988-1989. He is a member of SER (Svenska Nationalkommitten for Radiovetenskap). In 1986 he and his coauthor received the IEEE Vehicular Technology Society's Paper of the Year Award and in 1989 he and his coauthors were awarded the Marconi Premium Proc. IEE Best Paper Award.

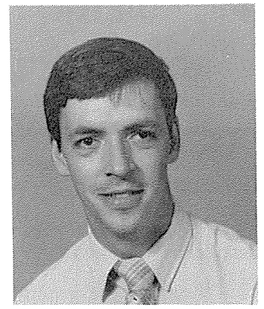
1990 NEW IEEE FELLOWS NORTH JERSEY SECTION



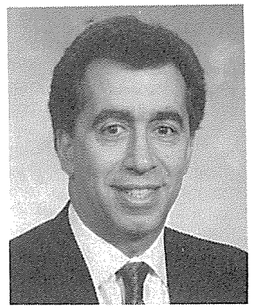
John G. Ackenhusen



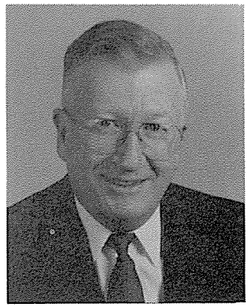
Vaclav E. Benes



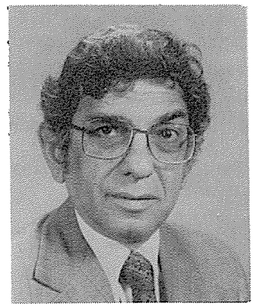
Alfred E. Dunlop



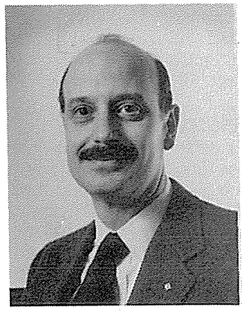
Harry Heffes



Phillip R. Nannéry

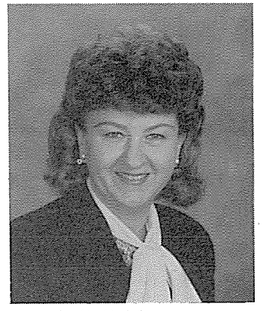


Morton B. Panish

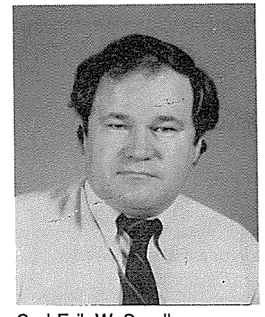


Michael Parente

Richard B. Robrock

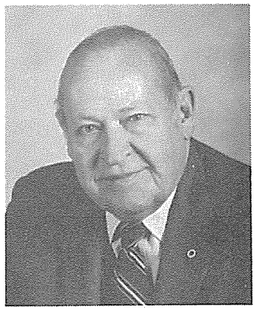


Virginia C. Sulzberger

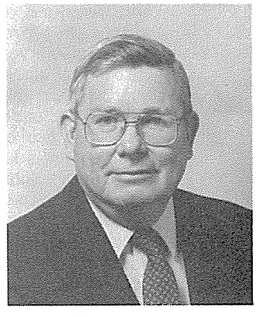


Carl-Erik W. Sundberg

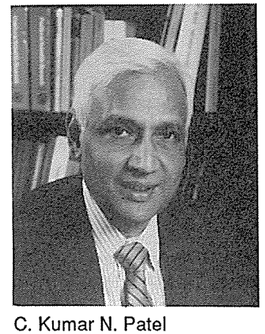
1989 IEEE AWARD WINNERS



Edward (Jack) Doyle



Billy B. Oliver



C. Kumar N. Patel

FELLOW AWARDS

John G. Ackenhusen
AT&T Bell Laboratories
"For contributions in real-time digital signal processing for speech applications"

Vaclev E. Benes
AT&T Bell Laboratories
"For contributions to the structure of telephone connecting networks, stochastic control, and non-linear filtering"

Alfred E. Dunlop
AT&T Bell Laboratories
"For contributions to automated layout of integrated circuits and development of techniques that significantly enhance performance"

Harry Heffes
AT&T Bell Laboratories
"For contributions to teletraffic theory and applications to modeling, analysis, and overload control"

Philip R. Nannery
Orange & Rockland Utilities Inc.
"For leadership in the application of advanced technology to electric transmission and distribution systems"

Morton B. Panish
AT&T Bell Laboratories
"For contributions to liquid-phase epitaxy of compound semiconductors leading to room-temperature semiconductor lasers"

Michael Parente
Bellcore
"For contributions to electrical protection and safety from the effects of lightning and power-line exposure on public telecommunication networks"

Richard B. Robrock
Bellcore
"For technical leadership in the architecture and implementation of the Intelligent Network"

Virginia C. Sulzberger
North American Reliability Council
"For the development and application of reliability techniques for the analysis of power systems"

Carl-Erik W. Sundberg
AT&T Bell Laboratories
"For contributions to power- and bandwidth-efficient constant-amplitude modulation methods."

FELLOW AWARDS

John G. Ackenhusen

John G. Ackenhusen is Department Head, Signal Processor Systems Engineering Department. He is responsible for driving the evolution and technology of the Navy Standard Signal Processing Computer and guiding the coordination of its application development, software, electrical, and physical design. Earlier, he was Supervisor, Speech Recognition Group. Formed and led a research and development group concerned with efficient algorithms, hardware, software, and integrated circuits for speech processing. Prior to that he was Member of Technical Staff, responsible for research in real-time speech recognition culminating in the invention of a real-time signal processing computer for speech recognition.

Dr. Ackenhusen's IEEE activities include: President, IEEE Signal Processing Society (formerly Acoustics, Speech, and Signal Processing Society, or ASSP), 1990-91; Vice President, ASSP, 1988-89; ASSP Administrative Committee, 1987-89; Technical Program Chairman, ICASSP-88; Chairman, ASSP Conference Board, 1986-89; Member, ASSP Conference Board, 1984-89; Member, ASSP Speech Committee, 1984-87; Member, ASSP VLSI Committee, 1984-89.

Dr. Ackenhusen has a BS in Physics (1975), BSE in Engineering (1975), MS in Physics (1976), MSE in Engineering (1976), PhD in Engineering (1977), all from The University of Michigan.

Vaclav E. Benes

Vaclav E. Benes was an MTS in the Advanced Concept Group of the Ocean Systems Engineering Department. He was responsible for theoretical analysis of detection and tracking systems

He joined AT&T Bell Laboratories in 1953 and spent 25 years in the Mathematics Research Center at Murray Hill, working on telephone traffic, stochastic processes, connecting networks, servomechanisms, combinatorics, FM, stochastic control, nonlinear filtering, fluid dynamics, MHD, dendritic growth, and underwater sound. He is the author of two books, and holds three patents. He is known for the Benes rearrangeable network used in computers, for a 1981 paper formulating control for stochastic DEs as a translation in Wiener space, and for the "Benes filter," the first finite-dimensional filter for nonlinear dynamics.

Vic has degrees from Harvard and Princeton, and belongs to the IEEE and various mathematical societies. In 1983 he received the IEEE Information Theory Group's Paper Award for a paper on nonlinear filtering. This academic year he is teaching at Columbia and NJIT.

Alfred E. Dunlop

Alfred E. Dunlop Is Head of the Computing Systems Technology Research Department at AT&T Bell Laboratories in Murray Hill. In 1977, he joined the Computer Aided Design Department at AT&T Bell Laboratories and in 1981 he designed custom circuits for telecommunications on the Advanced Terminal System. In 1982, he became Supervisor in The Computer Aided Design and Test Laboratory with responsibility for automated layout of gate array, standard cell, and macro-cell chips.

His interests include automatic techniques for performance optimization, physical design and design synthesis.

Mr. Dunlop has been on the Design Automation Conference program committee since 1985 and the International Conference on Computer Aided Design program committee since 1986. He is the Program Chairman for the 1990 Design Automation Conference.

He was associate guest editor of *Transactions on Computer Aided Design of Circuits and Systems*, October, 1983, September 1987 and November 1987. In 1987, he became associate editor for Layout and Routing for the IEEE *Transactions on Computer Aided Design of Circuits and Systems.*

Mr. Dunlop received the BSEE degree from the University of Delaware in 1975 and the MS and PhD degrees in Electrical Engineering from Carnegie Mellon University in 1976 and 1979, respectively.

Harry Heffes

In January 1990 Harry Heffes joined Stevens Institute of Technology as Professor and Department Head for the Electrical Engineering and Computer Science Department. He assumed these positions after a distinguished twenty-seven year career at AT&T Bell Laboratories where he was engaged in applied research in a broad range of areas, including voice and data communication networks, overload control for distributed switching systems, and teletraffic theory. At ICC'87, in Seattle, Harry was co-recipient of the IEEE Communication Society's S.O. Rice Prize Paper Award, for his work on modeling of packetized voice traffic. He has served as a U.S. Delegate to the International Teletraffic Congress since 1976, is an Associate Editor for *NETWORKS*, a member of Tau Beta Pi, Eta Kappa Nu, the Operations Research Society and ADM.

Philip R. Nannery

Philip R. Nannery is Director of Electrical Engineering for Orange and Rockland Utilities, Inc. He is responsible for planning, directing, administering and managing all electrical engineering activities for the utility, which serves parts of three states—New York, New Jersey and Pennsylvania.

Prior to working for O&R, Mr. Nannery was employed for twenty years by American Electric Power Service Corporation. At American, he was Manager of Electric Station Projects, and was responsible for the engineering and project coordination for all EHV transmission and distribution substations on the AEP system. He worked on many 765KV transmission and substation projects, the system's UHV project, current limiting devices and static VAR compensator applications at 138KV.

A leader in the development, design and application of the Advanced Static VAR Generator for more than a decade, Mr. Nannery was instrumental in the demonstration of the Prototype ASVG (1MVAR) on the Orange and Rockland system.

He has served on key committees of the IEEE, Edison Electric Institute and the Conference Internationale des Grands Reseaux Electriques and Haute Tension (CIGRE), for which he is presently the U.S. representative for substations. He is Chairman of the IEEE Substations Committee; Vice Chairman of the Association of Edison Illuminating Companies' Committee on Electric Power Apparatus; an alternate member of the New York Power Pool; and has served as Advisor to EPRI Projects.

Mr. Nannery attended the Cooper Union School of Engineering from 1961-1964 and received his BSEE from the New Jersey Institute of Technology in 1966. He has published several IEEE papers on a variety of subjects ranging from constructing and operating experiences of 765KV systems to extending the service life of 15KV polyethylene URD cable.

Morton B. Panish

Dr. Morton B. Panish attended New York City schools and was an undergraduate student at Brooklyn College and Denver University. He received the BS degree from the latter in 1950. At Michigan State University he received his MS and PhD degrees in physical chemistry, in 1952 and 1954 respectively. Dr. Panish's masters thesis concerned magnetic moments of some simple organic compounds and his PhD thesis was on thermodynamic and physical properties of several interhalogen compounds.

From 1954 to 1957 he was a chemist at the Oak Ridge National Laboratory where he investigated the thermodynamic properties of molten salts. From 1957 to 1964 he was at the Research and Advanced Development Division of AVCO Corporation where he was engaged primarily in thermodynamic studies of refractory materials at very high temperatures. In 1961 he was appointed chief of the Physical Chemistry Section and was responsible primarily for studies in very high temperature chemistry.

Dr. Panish was appointed a Member of the Technical Staff of Bell Laboratories in 1964. He was initially concerned primarily with elucidating phase equilibria in III-V systems, particularly III-V dopant systems as a precondition for understanding dopant incorporation during crystal growth and diffusion of impurity elements into III-V compounds. In 1969, Dr. Panish, with his collaborator Dr. Izuo Hayashi, demonstrated that GaAs—$A1_xGa_{1-x}As$ hetrojunction could be used to reduce dramatically the room temperature threshold current density of injection lasers, and in 1970 they presented the first experimental evidence for room temperature cw operation of an injection laser. In 1980 he demonstrated that successful Molecular Beam Epitaxy could be achieved with non-elemental sources. Since then he has emphasized the application of such new beam epitaxy methods, generally called Gas Source Molecular Beam Epitaxy, and a further modification called Metal Organic Molecular Beam Epitaxy, to the growth of heterostructures in the GAlnAs(P)/InP semiconductor system.

In 1969, Dr. Panish was appointed to head the Materials Science Research Department of the Solid State Electronics Laboratory at Bell Laboratories. He resigned this position in 1986 to return to full-time research.

In 1972, Dr. Panish received the Electrochemical Societies' Electronics Division Award. In 1979 he was the Solid State Medalist of the Electrochemical Society. In 1986 he was elected as a member of the National Academy of Engineering and also was awarded the C & C prize (Japan). In 1987 Dr. Panish was elected as a member of the National Academy of Science and was appointed as Distinguished Member of the Technical Staff at Bell Labs.

Michael Parente

Michael Parente is employed by Bellcore as District Manager, Electromagnetic Compatibility and Corrosion Control. He began his telephone career at Bell Laboratories in 1962, started electromagnetic compatibility work in 1969, and transferred to Bellcore in January 1984. He is active in the IEEE, serving as Chairman of the working group responsible for communication line protectors. He is a member of the Advisory Board of the Exchange Carrier Standards Association's Protection Engineer's Group. He has provided technical support to the Electromagnetic Pulse Task Force of the National Telecommunications Advisory

IEEE AWARDS & MEDALS

Edward (Jack) Doyle, Billy Oliver and Kumar N. Patel of the North Jersey Section received their awards at the IEEE Awards Ceremonies which were held on June 2, 1989 in San Francisco, California.

Edward (Jack) Doyle 1989 Haraden Pratt Award

Edward J. (Jack) Doyle, Engineering Consultant, received the 1989 Haraden Pratt Award for his "dedication to the effective utilization of the Institute's resources, leadership in Professional Activities, and the development of Institute facilities."

Billy B. Oliver 1989 Alexander Graham Bell Medal

Billy B. Oliver, a communications consultant and former Vice President of Engineering at AT&T Communications in Bedminster, received the 1989 Alexander Graham Bell Medal in recognition for "contributions to the conception and implementation of Dynamic Nonhierarchial Routing (DNHR) in telecommunications networks." Mr. Oliver received the medal jointly with Gerald R. Ash, Supervisor of the Traffic Network Design Group, AT&T Bell Laboratories, Holmdel, N.J.

C. Kumar N. Patel 1989 Medal of Honor

C. Kumar N. Patel, Executive Director, Research, Materials Science, Engineering and Academic Affairs Division at AT&T Bell Laboratories, Murray Hill, received IEEE's highest award, the 1989 Medal of Honor in recognition of "fundamental contributions to quantum electronics, including the carbon dioxide laser and the spin-flip Raman laser."