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The IEEE

# Newsletter

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

## APRIL 1989 Volume 35, Number 10

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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, 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.

### SECTION OFFICERS

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## Reliability Calculation Methods

The North Jersey Chapter of the Reliability Society will meet on April 18, 1989 to hear a talk on "Reliability Calculations From Component Models." The speaker will be Mr. Donald Wright of Bull HN Information Systems Inc., Lawrence, Massachusetts.

### About The Talk

There are three principle methods used for reliability calculation in the commercial and military markets: British Telecom HRD4, Bellcore TR-TSY-000332, and MIL-HDBK-217. Other corporations, such as CNET in France and Italtel in Italy, are examining these mathematical forms in an effort to establish their own method for calculations. The major cost in the commercial world, as well as within government systems, is in logistics modeling. As a result, reliability models must present a viable representation of failure rate projections and system availability, as well as establishing a base for calculating logistics and service costs.

We are now coming into an era where bar code control throughout product life will result in data structures that allow full correlation analysis between performance and projection. System models projections may be developed using bar code traceability. With bar code control beginning at the start of production and

continuing into the field, actual models of product and component failure rates can develop from these data. This presentation will examine these problems and argue for the need to establish a base parameter model under the auspices of ASQC, IEEE, RAC, and/or STACK that will be used by all Reliability Engineers in first approximation models. With this common base we may begin exchanging information for the betterment of the Reliability Engineering field.

### About The Speaker

Donald Wright is presently a Staff Reliability Engineer with Bull HN Information Systems Inc., where he is currently working internationally to develop a base component description model to be used in reliability calculations. He has attended the RCA Institutes, earned a BS degree with majors in Mathematics and Science from Rollins College, and has done extensive graduate work at Florida Institute of Technology, Northeastern University and Lowell University.

### Free Buffet

A free buffet will be provided starting at 6:00 PM, on a first-come-first-served basis.

**Time:** 7:00 PM, Tuesday, April 18, 1989.  
(Buffet starting at 6:00 PM.)

**Place:** ITT Auditorium, 500 Washington Avenue, Nutley, N.J.

**Further Information:** Sergei Bogaenko  
(201) 386-5358.



Electronic Show and Convention  
April 11-13/New York, New York

NJ 07675

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PACE Meeting:  
PREVIEW OF UPCOMING  
“CAREERS CONFERENCE”

The North Jersey Section's Professional Activities Committee for Engineers will meet on Thursday, April 13, 1989. The meeting will address the problems of underemployed engineers and will also preview the upcoming "Careers Conference" scheduled for April 29, 1989. (See information in this issue.)

All IEEE members and guests are encouraged to attend. Refreshments will be served

**Time:** 7:30 PM, Thursday, April 13, 1989.  
**Place:** ITT Auditorium (next to the Tower), use rear door, 500 Washington Ave., Nutley, N.J.  
**Further Information:** Richard Tax (201) 664-0803.

Catheter Choices  
For Arterial  
Blockage

On April 5, 1989, the Metropolitan Chapter of the Engineering in Medicine and Biology Society meeting will feature "Current Methods For Opening Blocked Coronary Arteries." The speaker will be Dr. David Grewe, Datascope Corporation.

**About The Talk**

The recent emergence of numerous catheters for removing blockages from coronary arteries raises questions as to the purpose for their variety of design. The talk will describe catheters which push blockages out of the way, others which mechanically remove them and some which use heat or laser light to tunnel through them.

**About The Speaker**

David Grewe received his PhD degree in Biophysics from the Univerisity of Vermont in 1974. He has been involved with the development of cardiovascular devices for the past 20 years. Among these are angioplasty catheters and laser catheters for removing atherosclerotic plaque.

**Optional Pre-Lecture Get Together**

There will be an informal pre-lecture get together 6:30 PM in the Tower cafeteria.

**Time:** 7:30 PM, Wednesday, April 5, 1989 (informal get together (optional) 6:30 in Tower cafeteria).  
**Place:** Rockefeller University, Tower Bldg., Room 305, York Ave. at E. 66th St., NYC.  
**Further Information:** Ben Caref (718) 270-1568; Vijay Kowtha (201) 932-4803; Joe Bogovic (212) 241-8032; Edna Feher (212) 757-0610.

CHAIRMAN'S  
CORNER

Congratulations to all of the North Jersey Award recipients shown in this issue of our Newsletter. We will formally recognize them for their contributions at our annual banquet which has been moved from Wednesday, April 26th, to Wednesday, May 3rd. This was done so that it would not fall within the Passover observance. I apologize for any inconvenience.

Please plan on attending our banquet on May 3rd. Chairman Ray Sears and committee are planning a banquet at The Chanticler, Millburn, N.J., similar to the one conducted last year and all for the same low price of \$35.00 per person. Make your reservations early as this might be a sell out with so many award recipients!

Again, volunteers are always welcome to support the ELECTRO SHOW to be held at the NYC Javits Center on April 11, 12, and 13. The North Jersey Section will reimburse commutation expenses. To volunteer for the Transportation Committee, contact George Graul at (201) 798-4403. To volunteer for the Registration Committee, contact Jim Tolbert at (609) 683-1991 (W) or (201) 846-1289 (H). Note, for students, groups of students are asked to attend after 11:00 AM on Thursday, April 13th.

The Region 1 Educational Activities Committee, Chaired by Dick Ackley, has made two video tape engineering courses with handouts available to members of our Section. For additional information, see notice on continuing engineering education.

By the way, to those of you who think that the IEEE is not doing enough in professional activities to obtain portable pensions and alleviate salary compression and age discrimination, I urge your support of Merrill Buckley's petition candidacy for President-Elect of the IEEE. He strongly supports action on these issues and needs about 2400 member signatures by mid May. If you would like to sign the petition or take one around to your member associates, please contact me at (201) 540-1283 (H) or Dick Tax at (201) 664-6954 (H).

I have a correction to make to the list of chapter chairmen printed in last month's NEWSLETTER. Henry Moss was elected the new Reliability Chapter Chairman. His work number is (201) 785-6458. Welcome to the Executive Committee, Henry!

HOWARD LEACH, Chairman

Center for Microwave and Lightwave Engineering at  
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North Jersey Section IEEE  
& Graduate Student Association, NJIT  
present  
The New Jersey Institute of Technology  
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Session No. 3 - COMPONENTS FOR OPTICAL SYSTEMS  
April 12, 1989, Wednesday 3-6 PM  
NJIT, Ballroom in Hazell Center

New Semiconductor Laser Structures	Eli Kapon Bellcore
Noise, Distortions and Other Bad Things That Impair Performance of Lightwave Systems	Thomas Darcie AT&T Bell Laboratories
Photonic Switching Systems	H. Scott Hinton AT&T Bell Laboratories

Registration Information  
There is no charge for this Seminar Series  
Refreshments served. Reserve Parking in Lot #7. Directions Available.

For Further Information Call:  
Dr. Gerald Whitman, E.E. Dept., NJIT  
(201) 596-3232/3512  
North Jersey Section "IEEE NEWSLETTER" - April, 1989 - Page 2

make your correspondence sound mass-produced. When Members of Congress receive many letters with nearly identical wording, they may discount them as being part of an organized pressure campaign. This method works only when mail is so voluminous that it has to be weighed rather than read. Personalized, individual letters often work best.

- Communicate at any time, but especially when legislation is being considered by congressional committees or subcommittees, before it reaches the House or Senate floor. Your communication will mean more when attention is already focused on your concern.
- Find out the committees and subcommittees on which your Congressman or Senators serve. They have more influence over legislation in these jurisdictions.
- Present the best arguments in favor of your position and ask for their consideration. You may find it useful to review arguments against your position and show why your position is preferred over others.
- Communicate with Members of Congress as a constituent, not as a self-appointed neighborhood, community or industry spokesperson. However, if you truly are representing a particular group, mention it.
- If Senators or Representatives have supported your cause or idea in previous legislation, let them know you appreciate their past leadership on the issue and that such support is applauded by their constituents.

**Communicate to Get Results**

IEEE United States Activities addresses many national public policy issues, as described in IEEE-USA's *Federal Legislative Agenda*. An updated *Agenda* is targeted for publication in January 1989. An IEEE-USA committee has proposed these issues for inclusion: retirement income benefits; tax policy; computers and communications; professional careers of electrical and electronics engineers (with sections on manpower, age discrimination, ethics, and intellectual property); education; energy policy; research and development; space policy; and government policies on technological competitiveness.

You can help Members of Congress better represent IEEE and your interests in the national legislature by communicating your views on the issues. Staying active in the political process is the best way to ensure that all technical interests are being represented. If you need additional help or specific details on the issues in which IEEE United States Activities is most active, contact the IEEE-USA Office in Washington, D.C.

“NO-GO ON FREE O.T.”

There is no such thing as a free lunch and there is no such thing as FREE Over-Time. Someone always has to pay. Flexibility is one thing and abuse is another; only you can decide. The following is from our December 1988 *IMPACT*.

IEEE-USA SEEKS TO ELIMINATE  
UNCOMPENSATED OVERTIME

IEEE United States Activities leaders and staff continue to press for changes in the practice of mandatory uncompensated overtime on Federal contract work. On September 14, Edward C. Bertnolli, Vice President for Professional Activities, Leo C. Fanning, Staff Director for Professional Activities, and W. Thomas Suttle, Staff Manager of Government and Career Activities, met with Allan V. Burman, Deputy Administrator and Acting Administrator of the Office of Federal Procurement Policy (OFPP) to discuss the issue.

IEEE and other professional societies are urging Congress and OFPP to ameliorate existing practices of bidding mandatory but uncompensated overtime for U.S. Department of Defense and other Federal contracts. "We will continue to work with all involved parties (i.e., the U.S. Congress, the Defense Contract Audit Agency, and Department of Navy) to bring these problems to light," Dr. Bernolli wrote in a follow-up letter. "There is no substitution for the positive effect of forceful demonstrative leadership from the top, and for that we look to your office."

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Therefore, we continue to expect your guidance and effective policy implementation to ensure that the practice of requiring mandatory uncompensated overtime under Federal contracts is eliminated."

Mention this to your Congressional representatives in your next communication. Please!

**USE THE CALENDAR**

Each issue of this publication contains a monthly Section Activities Calendar. You can help spread the word about our activities by making copies of the Calendar or other meeting notices and posting the copies on company bulletin boards and in other conspicuous places. All of these meetings are open to all members, guests and potential members. You do not have to be a member of a specific society to attend society meetings.

**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.

Joint Computer/Communications Society Chapter Session Dates SPRING 1989			
May 24	MUMPS - A popular language used by hospitals and some businesses	TBD	Dave Perry (201) 325-8415
May 24	Wiring	ITT Nutley	Jim Morgan (201) 766-0969
May 31	Operating System Standards for PC's	AT&T-BTL Murray Hill	Har Dyal (201) 785-7561
June 21	Newark Airport Communications	Airport	Dave Perry (201) 325-8415

Neural Networks In  
Robotic Application

On April 21, 1989, the Long Island IEEE Artificial Intelligence and Intelligent Robot Technical Committees have organized the first of a series of symposiums on one of the most popular and important topics in recent months, "Neural Networks (NN) And Applications To Intelligent Robots."

The first symposium will consist of six speakers from the State University of Stony Brook. The speakers will present their research work for advancing the state-of-the-art in neural networks architecture (electronic and optical) and applications to computer vision, and self-replicating robots for colonizing the Moon.

**Time:** 6:00 PM, Friday, April 21, 1989.  
**Place:** Harry J. Schure Hall, NY Institute of Technology, Old Westbury, LI.  
**Information:** Robert Hong (516) 575-3634, or Dr. Leon Wang (516) 686-7970.

# PACE NEWS

By R. Tax

## CAREERS CONFERENCE

A new slogan appears on the desk of the staff at IEEE Headquarters: REMEMBER THE MEMBER. With that slogan, and you in mind, PACE supporters are having a Careers Conference on April 29th.

At the direction of Victor Zourides, Region 1 Director, the Conference will be funded by Region 1 and hosted by the North Jersey Section. We of North Jersey are happy to do this since it makes the Conference more accessible to our members.

The conference is primarily for unemployed and under-employed engineers seeking assistance. Check this issue for further information. Give me a call and register early, attendance will be limited.

The following article is from the December 1988 issue of *IMPACT*, our National PACE newsletter. Lois K. Moore, Editor, Government Activities Council did an excellent job in putting this together. Don't let it go to waste. Read it, save it, use it. Make things happen (MTH).

## HOW TO COMMUNICATE WITH MEMBERS OF CONGRESS—

Many important issues facing the United States today need to be addressed by people with strong technical backgrounds. Engineers can make a difference in resolving many of these issues by becoming more involved in the political system. One of the best ways to contribute is by communication with Members of Congress.

The 535 Senators and Representatives holding seats in Congress represent the public's interests in the nation's legislature. Most are not technical experts. As citizens of a democracy, we have an obligation to stay informed on public issues and express our views about them. Otherwise, the public as a whole may not be adequately represented.

One of the most important things to consider when you want to voice your opinion on an issue is to determine who are the best people to contact. You should consider the following groups, both separately and collectively:

- Your Congressman or Senators;
- Members of the congressional committee that has responsibility or jurisdiction for the issue in which you're interested; and
- Members of Congress known for their involvement and interest in technical matters in general or in the specific issue that interests you.

### Ways to Communicate

You can communicate your views in a number of ways. Be sure to consider carefully the method you want to use; you want to be as effective as possible, and every situation will require different communication methods. Here are some of the most popular ways of communicating with Congress:

- Meetings—Personally meeting with a Member of Congress or with a congressional staff member is the best way to present your views. Since it may be difficult to arrange a one-on-one meeting with your congressman or senator, try to make an appointment well in advance to improve your chances. If the member is unavailable, you can meet with a staff member by visiting the district, regional or Washington D.C. office.

At the end of your meeting, leave a one-page description of the issue you've discussed and the action you want taken. Be sure to determine which staff person will be following your case and call periodically to be sure the office is fulfilling your request.

- Mail—Letter-writing is the most convenient and common way of communicating with Congress. Your letters can have an immediate impact on an issue. When writing, try to limit your corres-

pondence to one typewritten page. (If you are writing longhand, be sure it is legible.) It is not likely the Member of Congress will read your letter personally; it will most likely be answered or considered by a congressional staff member.

Letters should be addressed and sent in this manner:

Senator:

The Honorable \_\_\_\_\_  
United States Senate  
Washington, D.C. 20510

Dear Senator \_\_\_\_\_

Representative:

The Honorable \_\_\_\_\_  
United States House of Representatives  
Washington, D.C. 20515

Dear Representative \_\_\_\_\_

- Mailgrams or Telegrams—Mailgrams, telegrams, telexes and other forms of electronic communication are also very effective. However, it seems that as the cost of electronic communications drops, so does the impact of this method. As with letters, these messages are usually read by staff members. Use electronic messages only when you don't have time to compose and send a letter.

- Telephone Calls—Phone calls are more personal than both letters and electronic messages and can be very useful and effective in communicating your opinions. Be sure to do your homework before phoning. Also, if you want to talk directly to a Senator or Congressman rather than to a staff member, try to prearrange a conference call.

Another way to meet with Members of Congress is to invite them to address an audience. To arrange presentations by Senators or Representatives, find out when they will be in your district and what times they are available. Their appointments secretaries will provide this and other pertinent information you will need to set up your meeting. Tell the secretary how many people you expect at the meeting, who the group represents, the size of the organization, and how many of the expected attendees live and work in the Senator's or Congressman's district.

### Tips for Better Communication

Here are some guidelines to help make your communications more effective:

- Identify clearly the issue in which you are interested. Be sure to include the House or Senate bill number of specific legislative proposals.
- State briefly why you're concerned about the issue. Your personal experience will lend supporting evidence. Explain how you think the issue will affect your business, profession, community or family.
- If appropriate, communicate the widespread concern among the Congressman's constituents. Explain how you think the constituents will benefit from your position.
- If you want your Congressman to take action on your behalf, clearly (but politely) ask for this action. Don't expect Members of Congress to know exactly how to solve the problem, and don't expect them to read between the lines.
- If you have an idea you'd like to see turned into legislation, suggest this initiative to your Congressman. Volunteer your services as an information resource or researcher on the subject.
- If your issue has been discussed in newspapers or magazines, be sure to include copies of articles in your correspondence. If the issue hasn't been included in the news media, it might be useful to attract the interest of the press first.
- Restrict yourself to one topic in a letter or other communication. Concentrate your arguments; summarize them and make your recommendations on one page.
- Use your own words. Use conversational language and avoid technical terms. Avoid using trite phrases or cliches, which can

## UNIX X-Window And OPEN LOOK

On April 26, 1989 the North Jersey Joint Computers and Communications Society will meet to hear a talk on "UNIX X-Window And OPEN LOOK." The speaker will be Steve Mershon of AT&T Bell Laboratories.

### About The Talk

The talk will cover two important emerging standards in the field of graphical user interfaces: the X Window System™ from MIT and the OPEN LOOK™ Graphical User Interface from AT&T and Sun Microsystems. X is a set of protocols and software that permits the sharing of bitmapped graphics displays among multiple heterogeneous computers in a network. OPEN LOOK is a specification for the appearance of an application's window-based user interface. While X standardizes the low-level programmer interface, OPEN LOOK standardizes the end-user interface. Software products based on these two standards may be used together or independently when developing applications.

### About The Speaker

Steven Mershon has been a Member of Technical Staff at AT&T Bell Laboratories since 1980. He joined the UNIX® Development Technology Department at Bell Labs, Summit, N.J. facility in January of 1989, where he is a systems engineer for the AT&T OPEN LOOK Graphical User Interface. His earlier work was in the field of database management systems. Steve holds a BA in math and psychology from the University of Virginia and an MS in Computer Science from Yale. Before joining Bell Labs, he was a Senior Engineer at Boeing Computer Services in Seattle, WA where he developed database management software for CAD/CAM systems.

**Time:** 8:00 PM, Wednesday, April 26, 1989.

**Place:** AT&T Bell Labs Auditorium, 600 Mountain Ave., Murray Hill, N.J.

**Further Information:** George Pick (201) 884-6040.

## IEEE North Jersey Section Calendar

**April 5, 1989--**"Current Methods For Opening Blocked Coronary Arteries"--Metropolitan Chapter of the Engineering in Medicine & Biology Society, 7:30 PM, Rockefeller University, Tower Bldg., Rm. 305, York Ave. at E. 66th St., NYC. Ben Caref (718) 270-1568.

**April 11-13--**"ELECTRO/89"--IEEE METSAC. See details in March Newsletter for show, conference, and tutorials information.

**April 12--**"Optoelectronic Seminar Series: Session No. 3"--NJIT & North Jersey Section, 3-6 PM, NJIT, Ballroom in Hazell Center, Newark, N.J. Dr. Gerald Whitman (201) 596-3232/3512.

**April 13--**"PACE Meeting"--North Jersey Section PACE Committee, 7:30 PM, ITT Auditorium, 500 Washington Ave., Nutley, N.J. Richard Tax (201) 664-0803.

**April 13--**"Submillimeter Heterodyne Detection With Superconductive Electronics"--North Jersey IEEE MTT-AP Chapter, 7:30 PM, ITT Club House, 417 River Road, Nutley, N.J. **Reservations required for free pre-meeting buffet dinner.** Dick Snyder (201) 492-1207.

**April 18--**"Reliability Calculations From Component Models"--North Jersey Chapter of the Reliability Society, 7:00 PM, ITT Auditorium, 500 Washington Avenue, Nutley, N.J. Sergei Bogaenko (201) 386-5358.

**April 19--**"Diversity Protection For Digital Radio Against Multipath Fading"--Joint Computers and Communications Society, 8:00 PM, ITT Auditorium, 500 Washington Avenue, Nutley, N.J. George Parowski (212) 460-6030.

**April 21--**"Symposium: Neural Networks And Applications To Intelligent Robots"--LI IEEE Artificial Intelligence and Intelligent Robotics Technical Committee, 6:00-8:30 PM, Harry J. Schure Hall, NY Institute of Technology, Old Westbury, LI. Prof. Robert Hong (516) 575-3634.

**April 26--**"UNIX X-Window And OPEN LOOK"--North Jersey Joint Computers/Communications Society, 8:00 PM, AT&T Bell Laboratory Auditorium, 600 Mountain Ave., Murray Hill, N.J. George Pick (201) 884-6040.

**April 29--**"CAREERS CONFERENCE"--IEEE Region 1 and North Jersey Section, 9:00 AM-4:00 PM, ITT Club House, 417 River Rd., Nutley, N.J. Richard Tax (201) 664-6954.

**May 3--**"North Jersey Section Annual Banquet"--**PLEASE NOTE DATE CHANGE.** See Banquet registration form in this issue.

**May 10--**"Technology Management"--NY/NJ Chapter of the Engineering Management Society. Jay Gilbert (201) 420-5369.

**May 10--**"First Annual Bioengineering Conference"--IEEE Metropolitan Chapter Engineering in Medicine and Biology, Rockefeller University, Tower Bldg., Room 305, NYC. Ben Caref (718) 270-1712.

**May 17--**"Symposium: Emerging Microwave Technologies"--LI Chapter MTT Society. For details call Pari Boloori (516) 231-1700, ext. 437.

**May 20--**"Symposium On Co-Generation And Resource Recovery"--North Jersey Section Industry Application Society, 9:00 AM-3:00 PM, Park Ridge Marriott, 300 Brae Blvd., Park Ridge, N.J. V. Rebbapragada (201) 265-2000, ext. 3449.

## PLEASE POST

## Members and Non-Members Welcome



SIS Mixers Design And Testing

The April 13, 1989 meeting of the North Jersey IEEE MTT-AP Chapter will feature a talk on "Submillimeter Heterodyne Detection With Superconductive Electronics." The speaker will be Dr. Michael J. Wengler of the University of Rochester.

About The Talk

A superconductive tunnel diode called an SIS is an extremely sensitive detector of signals at frequencies of 100 GHz and higher. In fact, it is capable of detecting every photon that it absorbs. For spectroscopy of signals from 100 to 760 GHz, heterodyne receivers using an SIS as the mixing element have demonstrated lower noise levels than any other technology. These receivers have been used for 100 to 260 GHz radio-astronomy at radio-telescopes around the world since about 1979, and have recently been used up to about 500 GHz.

This talk will describe these SIS mixers, including the underlying physical principles of the SIS diode and its interaction with radiation, the design of SIS mixers, and the fabrication and testing of these mixers.

The operation of the SIS tunnel diode detector has characteristics of both the semiconductor diode used for microwaves, and the photo-diode or photo-conductor used for infrared and higher frequencies. It is like the microwave diode in that its detection is essentially done by rectifying the incoming signal wave. It is like the photo-diode in that it absorbs energy from the incoming signal in units of hv, the energy of a photon. It is this second property that accounts for its incredibly high sensitivity.

Like the underlying physics, the design of submillimeter SIS receivers also draws from both microwave and optical techniques. For the longer wavelength end of this range, waveguide-mounted SIS's are used. For the shorter wavelengths, waveguides become very small and lossy. Instead, we use what we call the quasi-optic SIS. The SIS is integrated with a lithographically defined micro-antenna. The SIS-antenna is then placed on the back of a lens, which focuses the signal radiation into it. This system works well to as high a frequency as it has yet been tested, 760 GHz.

Various SIS receivers in use on radio telescopes will be shown. The progress of work with the quasi-optic SIS will be reviewed. Fabrication techniques for SIS diodes will be described.

About The Speaker

Dr. Michael J. Wengler started his high frequency receiver career in 1978 when he worked for Bell Telephone Labs in their Radio Research Department. There he worked on ultra-low-noise 100 GHz receivers, which were based on GaAs

Schottky diodes operated at cryogenic temperatures.

In 1980 he joined Caltech and began working on 100 GHz receivers using the SIS superconductive tunnel diode. He extended the theory of the SIS mixer by treating the signal radiation quantum mechanically. He developed computer programs to aid in the design and analysis of SIS mixers. Finally, he constructed the first quasi-optic SIS receiver, which showed record sensitivities for detection above 300 GHz.

On receiving his PhD in 1987, he became an assistant professor of Electrical Engineering at the University of Rochester. He is investigating, both theoretically and experimentally, some of the quantum mechanical implications of the extremely high sensitivity of the SIS. He is continuing to develop submillimeter receivers for radio-astronomy. He will also work with other superconductive circuits, in particular he is interested in oscillator circuits for the submillimeter frequency range.

Professor Wengler is an NSF 1988 Presidential Young Investigator and a member of the IEEE.

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: 7:30 PM, Thursday, April 13, 1989. Place: ITT Clubhouse, 417 River Road, Nutley, N.J. (Pre-meeting dinner at 6:00 PM. Reservations required.) Information/Reservations: Dick Snyder (201) 492-1207; Willie Schmidt (201) 284-2255.

Diversity Protection For Digital Radio

On April 19, 1989 the North Jersey Joint Computers and Communications Society will present a a talk on "Diversity Protection For Digital Radio Against Multipath Fading." The speakers will be Drs. Sing H. Lin and Ted C. Lee of Bellcore.

About The Talk

This talk summarizes a series of critical experiments which led to recent discoveries of large improvement factors for digital radio performance against multipath dispersive fading for several diversity protection techniques such as antenna angle diversity, antenna mode diversity, antenna pattern diversity, frequency diversity and space diversity. The measured diversity improvement factors for digital radio against multipath dispersive fading are larger than those predicted by existing analog radio models by at least one order of magnitude. Applications of these findings will lead to substantial savings in the cost for digital radio routes. These discoveries stimulated the development of new models of diversity improvement factors for digital

radio and the development of the DRDIV computer program for engineering digital radio routes.

About The Speakers

Dr. Sing H. Lin is a District Manager for Digital Radio Systems at Bellcore. He is responsible for Bellcore Generic Technical Requirement Documents, engineering guidelines and engineering tools for digital radio systems which are used by Bell Operating Companies in both inter-city transmission and subscriber loop applications. Dr. Lin received his PhD in EE from the University of California, Berkeley in 1969. From 1969 to 1983, he was a Member of Technical Staff and Technical Supervisor for Radio Systems at Bell Labs.

Dr. Lin is a senior member of IEEE, a member of URSI and a member of CCIR US Study Groups 5 and 9. His work includes experiments, analyses and modeling related to terrestrial and earth satellite radio systems. He is a recipient of Bellcore Award of Excellence.

Dr. Ted C. Lee received his PhD in EE from the Ohio State University in 1983. From 1979 to 1983, he was a Graduate Research Associate at the Electro Science Laboratory at Ohio State and worked on millimeter wave propagation for satellite communication and radar target identification. He joined Bellcore in 1984 as a Member of Technical Staff. He has been working on diversity protections for microwave digital radio and radio interference caused by urban reflections and terrain scattering. Dr. Lee is a member of the IEEE.

Time: 8:00 PM, Wednesday, April 19, 1989. Place: ITT Auditorium, 500 Washington Avenue, Nutley, N.J. Further Information: George Parowski (212) 460-6030; Dr. Sing Lin (201) 758-5455.

Engineering Management Society Announces Meeting Dates

The NY/NJ Chapter of the Engineering Management Society announces the following schedule of meetings for 1989:

May 10 - Dr. William Wells - "Technology Management." September 18 - Dr. Jerry Siegel - "Motivating The Engineer." November 15 - Dr. Michael Frisch - "Leadership in Management." For information call: Jay Gilbert (201) 420-5369.

QUESTIONNAIRE

What societies are you a member of? \_\_\_\_\_

Your Age: \_\_\_\_\_ Highest degree:\_\_\_\_\_ Major:\_\_\_\_\_

Are you presently working in the field of your degree? \_\_\_\_\_ (Y or N)

CAREER MANAGEMENT TOOLS:

Please assign in order of priority the following career management tools:

- [ ] Knowledge of your own skills.
- [ ] Knowledge of market demand for your type of services.
- [ ] Information about market trends.
- [ ] Marketing tools needed to market your skills.
- [ ] Continuing Education
- [ ] Talents that could be used with different responsibilities.
- [ ] Talents that could be used in a second career.
- [ ] \_\_\_\_\_
- [ ] \_\_\_\_\_

Do you think that your career management tools need continual sharpening? \_\_\_\_\_

JOB MARKETING

Have you ever been successful in finding employment through services provided by a professional society? \_\_\_\_\_

Should the scientific and engineering professional societies offer an employment service something like 40 Plus in NYC?\_\_\_\_\_

Should the scientific and engineering professional societies offer a clearinghouse for consulting assignments? \_\_\_\_\_

If you have changed jobs recently, do you prefer working through employment agencies? \_\_\_\_\_ applying direct to the company? \_\_\_\_\_ responding to ads in the press? \_\_\_\_\_

SKILLS TRANSFER

Do you have skills that you believe could be used by more than one industry? \_\_\_\_\_

SIZE OF THE MARKET

Do you think there's a shortage of manpower with your skills? \_\_\_\_\_ Is it difficult for someone over 50 to find work? \_\_\_\_\_

WORK LOCATION

Would you accept full time assignments out of this area? \_\_\_\_\_

Assignments beyond normal commuting distance? \_\_\_\_\_

Assignments outside the country? \_\_\_\_\_

Are you familiar with the ways and means of work arrangements for working outside the USA such as work permits, IRS rules, fees and contracts, questions of medical insurance, etc.? \_\_\_\_\_

CAREER CHANGE

Are you satisfied with your present position? \_\_\_\_\_

Are you planning a career change in the near future?\_\_\_\_\_

CONTINUING EDUCATION

Who should pay for continuing education? the employer? \_\_\_\_\_

the government? \_\_\_\_\_

the employee? \_\_\_\_\_

Why did you select that answer? \_\_\_\_\_

Does your work schedule make it difficult for you to participate in continuing education programs? \_\_\_\_\_

BE YOUR OWN BOSS?

Do you have an entrepreneurial spirit? \_\_\_\_\_

Do you want to learn more about how to set up your own consulting company or emulate the Apple Computer company? \_\_\_\_\_

MOVING AHEAD WITHIN

Do you want to learn techniques for remaining in the same company? \_\_\_\_\_

\*\*\*\*\*

HELP US

If you think you know what is needed to help the scientist and engineer improve his career management tools, enclose your ideas with this questionnaire.

Please fill out and send this questionnaire to:

Mr. David P. Perry  
IEEE North Jersey Chapter  
Intersociety Committee  
57 Forest Hill Road  
West Orange, NJ 07052

## IAS Seminar On Co-Generation And Resource Recovery

On May 20, 1989 the North Jersey Section Industry Application Society will present a Panel Symposium consisting of six presentations covering the primary areas of concern to the electrical engineer. The Chairman and Moderator will be R.V. Rebbapragada, Chairman IAS/North Jersey Chapter. Mr. Rebbapragada is Manager, Electrical Engineering, Burns and Roe Co. of Oradel, New Jersey.

The presentation topics and speakers are as follows:

1. Licensing and Utility Rate/Tariff, Considerations Associated with Planning Co-Gen Plants - *J. Tana, Jr., EBASCO Services (201) 241-5565.*
2. Utility Requirements for Co-Gen Plants - *E. Griffith, Jersey Central Power & Light (201) 455-8313.*
3. Plant and Generator Protection Requirements for Co-Gen Units - *R.V. Rebbapragada, Burns and Roe Company (201) 265-2000.*
4. Electrical Control Panel, Metering, Alarms and Monitoring for Co-Gen Plants - *L.H. Cordero, Foster Wheeler USA Corp (201) 730-4293.*
5. Design Considerations of 30kw-1000kw Co-Gen Plants Using Reciprocity Gas Engines - *L. Cadigan, Tecogen, Inc. (201) 671-2200.*
6. Startup of Co-Gen Units - *A. Bagocius, Consolidated Power Co. (203) 847-2747.*

These in-depth talks will be presented on Saturday, May 20, 1989 starting at 9 AM and ending by 3 PM. The location is the Park Ridge Marriott, 300 Brae Blvd..

Park Ridge, N.J. (201) 307-0800.

Cost for this complete technical discussion, including the luncheon is as follows: \$90 Non-Members, \$60 Members, \$35 Students.

In order to provide the presentation at this price, reservations with a \$30 per person deposit should be made by May 1, 1989. The remainder will be accepted at the door. Check or money order for the deposit should be made payable to IEEE North Jersey Section and sent to Mr. Vittal Rebbapragada, Manager, Electrical Engineering, Burns and Roe Co., 800 Kinderkamack Road, Oradell, NJ 07649.

Coffee and danish will be served before the talks commence and coffee will be available throughout the morning. A buffet luncheon will be served during seminar break to offer an opportunity for people to get together to discuss various side issues at length.

**Time:** 9:00 AM-3:00 PM, Saturday, May 20, 1989.

**Place:** Park Ridge Marriott, 300 Brae Blvd., Park Ridge, NJ. (201) 307-0800.

**Further Information:** Vittal Rebbapragada (201) 265-2000, ext. 3449.

***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 Richard Snyder, Section Secretary at (201) 492-1207.***

***Elected Section Officers are listed on Page 1.***

## First Annual Bioengineering Conference

On May 10, 1989, the First Annual Bioengineering Conference sponsored by the IEEE Engineering in Medicine and Biology New York/Northern New Jersey/Long Island Chapter, will take place at the Rockefeller University, Tower Building, Room 305, NYC. The NYC EMBS Conference hopes to promote regional cooperation and communication in biomedical engineering and computing through the exchange of technical information.

Additional information may be obtained by contacting any of the following persons:

Benjamin Caref, Chairman, SUNY Health Science Center, Box 1199, 450 Clarkson Avenue, Brooklyn, N.Y. 11203 (718) 270-1712;

Raphael Henkin, Chairman, Program Comm., Brooklyn VA Medical Center, Dept. Cardiology, 800 Poly Place, Brooklyn, N.Y. 11209 (718) 630-3734;

V.J. Kowtha, Vice Chairman, Rutgers University, Dept. Bioengineering, Box 909, Piscataway, N.J. 08855 (201) 878-1889.

## Continuing Engineering Education

Region 1 recently obtained two public domain video tape engineering courses for use by sections within Region 1. The course material consists of video tapes and handouts. The two video courses are as follows:

1. "Practical Aspects of Sampling and the Discrete Fourier Transform," by Gregory A. Clark, dated 11/15/83, approximately 4 hours.
2. "Applied Signal Processing," by J.V. Candy & D.L. Lager, approximately 25 hours.

We have one set of material for each of the above courses which we must return within a reasonable time so that it can be made available to other sections. If you are interested in borrowing either of the above courses for either individual or group study, please contact George Graul at (201) 798-4403. If there is enough interest, we will look into obtaining a Section copy.

## Intersociety News

by  
Dave Perry

### RECOVERING FROM CONTRACT/JOB TERMINATION

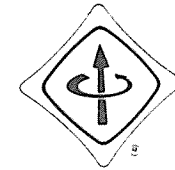
Sometimes contract or job termination can occur without warning. There's a leveraged buyout, the regulated company becomes deregulated and must reduce its staff to become competitive, a defense contractor loses a major contract, the technology changes from analog to digital. At other times, one may know well in advance that the contract or job is about to be terminated. Even remaining in the same company, the engineer and scientist needs to be prepared to move with changes in technology and changes in the structure of business.

If you are in control of your career you may find that the end of one contract or job is an opportunity and a challenge. Applying the tools of career management will help to strengthen your control.

There are several career conferences in the works designed to help you sharpen your career management tools. Region 1 is planning one for Saturday, April 29, to be held at the ITT Club House. IEEE is planning a National Career Conference to be held in St. Petersburg, Florida, this coming November and as mentioned in the last issue of the Newsletter, North Jersey Section Intersociety Committee is planning a conference for some time in 1990 with the title: "Career Management For The Mature Engineer."

We are inviting a number of other local societies to join with us in running the 1990 conference as the topics to be covered apply to scientists and engineers regardless of their speciality. Invitations to participate are going out to local chapters of the American Chemical Society, The Society of Chemical Engineers, American Society of Mechanical Engineers, The Institute of Management Science, Operations Society of America, and others that were cosponsors of our Small Business R&D Opportunities Conference held at the Woodbridge Hilton in 1987.

In order to test the waters, we have prepared a questionnaire to determine your priorities as to career management and to collect some information about the number of people interested in sharpening their career management tools.



IEEE REGION 1  
and  
NORTH JERSEY SECTION

## CAREERS CONFERENCE

Saturday, April 29, 1989

9:00 AM - 4:00 PM

8:00 - 9:00 AM Registration and Continental Breakfast

Lunch and Refreshments Provided

ITT CLUB HOUSE

417 River Road, Nutley, N.J.

**Directions:** From Garden State Parkway, take exit 153 to Route 3, East, to Route 21 South. From N.J. turnpike, take exit 16W West to Route 21 South. Then take first exit on Route 21 South, Exit 8, Lyndhurst, Nutley; turn right onto River Road, North, to ITT Club House on left.

### CAREER DEVELOPMENT

Designed to aid engineers in planning and developing their own personal careers. In addition, assistance with planning mid-career changes, including preparation for engineering management, will be provided. Handouts, including IEEE Employment Guide and a career development bibliography, will be provided.

### EMPLOYMENT ASSISTANCE

Designed to aid engineers through a step-by-step procedure to locate prospective employers, which is a more difficult task than most realize. Will enable the engineer to prepare a good resume. Sample interviewing sessions will be provided. You will be taught the art of negotiating salary, vacation benefits, etc.

### ECONOMIC FORECAST

The economic outlook for the New York Metropolitan and Northeast areas will be provided for the next 3-5 years by a professional economist.

This is a well-developed workshop and has been presented approximately 25 times before by IEEE USAB. The principal speaker will be John Miller, a retired engineer, who is a member of the IEEE USAB Employment Assistance committee.

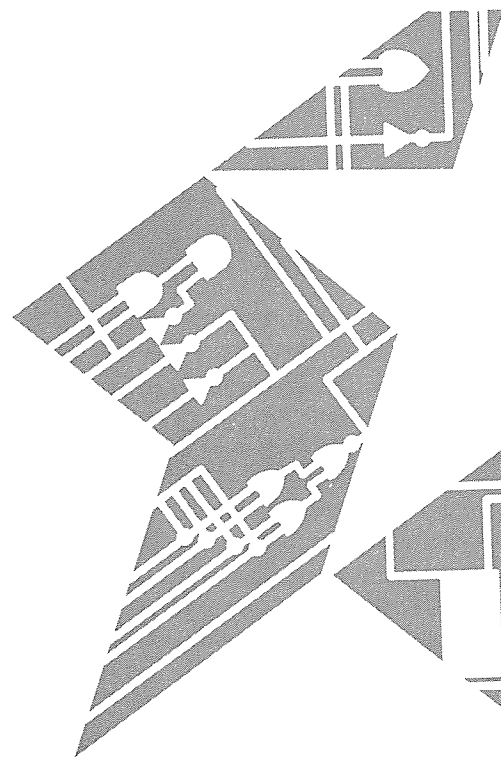
**FEE:** Free to IEEE Members and unemployed engineers, with advance registration by April 20th; \$36.50 half-year IEEE membership fee for nonmembers, with advance registration by April 20th. After April 20th, add \$10.00 to above fees.

For additional information and advance registration, contact:

Duane Matthiesen, Boston (508) 440-8214;

Richard Tax, North Jersey (201) 664-6954.

## PLEASE POST



# *This Year in New York City:* **Electro Delivers**

*The People  
The Products  
The Technology*

Electro Delivers the newest products, the latest technology and the largest gathering of technical experts in one place at one time in the Eastern United States.

Electro Delivers the largest concentration of electronic products such as: components, microelectronics, fiber/electro-optics, computers, test equipment, control systems, production and packaging equipment, and software. Products that help you do your job better, quicker and more economically. Electro gives you an unprecedented opportunity to shop, compare and select from the finest vendors in the world.

Electro Delivers an idea-generating professional program that helps you in your professional growth and development and to become an even greater asset to your organization.

**NEW AT ELECTRO this year will be the AUTOMATED DESIGN CENTER. Experience first-hand the newest developments and applications in this exciting technology! The Electro/89 Automated Design Center will feature thousands of product demonstrations of hardware, software and systems.**


Electro is the most comprehensive design-oriented electronics trade show in the East. Its 14 years of established leadership assures you of a smooth, professionally run and rewarding trade show experience.


April 11-13, 1989

Jacob K. Javits Convention Center

New York City, New York

Sponsored by

Region 1, METSAC and CNEC, IEEE 

New York and New England Chapters, ERA 

## **Electro/89**

*Building a World Class Economy...  
Your Passport to the Future*

### **SHOW HOURS**

Tuesday, April 11, 1989

9:30 a.m.-6 p.m.

Wednesday, April 12, 1989

9:30 a.m.-6 p.m.

Thursday, April 13, 1989

9:30 a.m.-4 p.m.

### **PLAN NOW TO ATTEND!**

50% off at-the-door registration for IEEE members!

For information, call 800/421-6816.

In California, call 800/262-4208.

## **PLEASE NOTE: NEW DATE**

**Date: May 3, 1989**

**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 - May 3, 1989**

**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 eleven years, we are returning to the Chanticle in Millburn. The affair is scheduled for Wednesday evening, May 3, 1989. Each ticket is \$35.00 and includes a complete prepaid Cocktail Hour preceding dinner. Spouses and guests are welcome.

Reservations required by April 22, 1989. Complete the reservation form below and return it with your payment. If any additional information is required concerning the Banquet, contact Ray Sears at 386-2259.

Inquire about corporate tables.

Use this form for Banquet reservations enclosing a stamped self-addressed envelope. Reservations required by April 22, 1989. Mail reservation request to:

Ray Sears  
13 Garabrant Street  
Mendham, NJ 07945

Enclosed is \_\_\_\_\_ Please forward \_\_\_\_\_ tickets at \$35.00 each (make checks payable to **North Jersey Section IEEE**) to:

Name: \_\_\_\_\_

Address: \_\_\_\_\_

\_\_\_\_\_ Zip \_\_\_\_\_

I would like to share a table (seating \_\_\_\_\_ ) with the following:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



those involving the discovery and analysis of dark-line defects; the discovery of strain effects upon laser reliability; the attainment of long operating lifetimes in LEDs and injection lasers; the first measurement of the thermal acceleration of injection laser operating lifetime; and effects of surfaces on LED and laser reliability. In 1980 Mr. Hartman was appointed Supervisor of the Semiconductor Lightwave Lasers Group. He is a member of Sigma Xi, and the American Physical Society.

### Serge Luryi FELLOW AWARD

Dr. Luryi has been a member of the technical staff at AT&T Bell Laboratories, Murray Hill, N.J. since 1980, where he is currently a group supervisor in Advanced VLSI Development Laboratory. He has published over 70 papers on topics ranging from properties of polysilicon gates to theory of the quantized Hall effect. His main research interests are in the physics of exploratory semiconductor devices. He holds a number of patents on novel high-speed and optoelectronic devices as well as new methods of epitaxial crystal growth. Among his major accomplishments the invention in 1983 of a new class of three-terminal hot-electron devices (the charge injection transistor, or CHINT, and related devices) and the proposal in 1984-1985 of several single crystal Ge/Si heterostructures for long-wave fiber-optics communications. Since 1986, Dr. Luryi has been the Editor of *IEEE Transactions on Electron Devices*.

Dr. Luryi received his undergraduate degree in physics in 1971 from the Leningrad State University, USSR. In 1973 he emigrated to Canada, where he received his MSc and PhD degrees in theoretical physics from the University of Toronto, 1975 and 1978, respectively. His graduate and postdoctoral research was devoted to intermolecular interactions and lattice vibrations in solid hydrogen.

### Nicholas F. Maxemchuk FELLOW AWARD

Dr. Maxemchuk is head of the Distributed Systems Research Department at AT&T Bell Laboratories, Murray Hill, N.J. and has been at AT&T Bell Laboratories since 1976. Prior to joining Bell Laboratories he was at the RCA David Sarnoff Research Center in Princeton, N.J. for eight years.

Dr. Maxemchuk has been on the adjunct faculties of Columbia University and the University of Pennsylvania. He has been an advisor to the United Nations on data networking and has been on networking panels for the U.S. Air Force and DARPA. He has served as the Editor

for Data Communications for the *IEEE Transactions on Communications*, as a Guest Editor for the *IEEE Journal on Selected Areas in Communications*, and has been on the program committee for numerous conferences and workshops.

He received the BSEE degree from the City College of New York, N.Y. and the MSEE and PhD degrees from the University of Pennsylvania, Philadelphia.

Dr. Maxemchuk was awarded the RCA Laboratories Outstanding Achievement Award, the Bell Laboratories Distinguished Technical Staff Award, and the IEEE's 1985 and 1987 Leonard G. Abraham Prize Paper Award.

### Debasis Mitra FELLOW AWARD

Debasis Mitra is currently head of Mathematics of Networks and Systems Department, AT&T Bell Laboratories. He joined Bell Laboratories as a Member of Technical Staff in 1968. Since 1972 he has been in the Mathematical Sciences Research Center at Murray Hill. During the fall semester of 1984 he was a Visiting McKay Professor at the University of California, Berkeley.

He has worked on the stability analysis of nonlinear systems, semiconductor networks, growth models for new communication services, speech waveform coding, digital filters, adaptive filters, echo cancellers and network synchronization. His current interests are in communication networks, queuing networks and parallel algorithms. He has been involved in the development of asymptotic theories for large queuing networks and their incorporation in the software package PANACEA. He has also been working on various asynchronous parallel numeric algorithms.

Dr. Mitra was born in India in 1944. He received the BSc and PhD degrees in Electrical Engineering from London University in 1964 and 1967, respectively. During 1965-1967 he held a United Kingdom Atomic Energy Authority Research Fellowship.

In 1967 he was awarded the Premium Award for Best Publication by the Institution of Electrical Engineers, United Kingdom. He was also awarded the 1981 Guillemin-Cauer Prize Paper Award by the IEEE. He is a member of the ACM, SIAM, ORSA and IFIP Working Group 7.3

### James West FELLOW AWARD

James West, DMTS, Acoustics Research Department, AT&T Bell Laboratories, Murray Hill, N.J. "For contributions to electret transducers and the understanding of charge-storage phenomena in polymers."

### Robert Sinusas REGION 1 AWARD

Robert Sinusas has been involved with the Executive Committee of the North Jersey Section of the IEEE since 1975. During 1975-1976 he was the Chairperson of the Socio-Economics Committee. He has held the position of Group Coordinator, Secretary, Treasurer, Vice Chairman, Chairman, and is now Junior Past Chairman of the North Jersey Section.

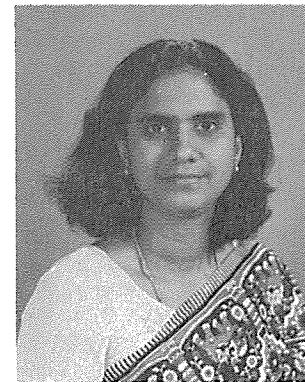
For his undergraduate studies he attended Drexel University in Philadelphia, PA. He continued his graduate studies at the New Jersey Institute of Technology in Newark. He has worked and consulted for a number of companies in the North Jersey area: Fairchild, Monsanto, Dumont Labs, Weston and Bendix. He is currently associated with Allied Bendix Aerospace Guidance System Division.

Dr. Sinusas is a Senior Member of the IEEE and is a licensed professional Engineer (NJ).

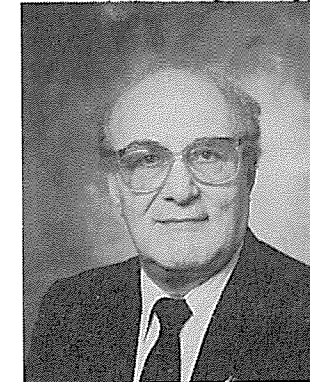
### George D. Graul REGION 1 AWARD

George D. Graul, originally an IRE member, has been active in the IEEE since the 70's when he served first as Vice Chairman then Chairman of the Vehicular Technology Chapter. He has since served as chairman of various Chapters and Committees including PAC NY Section, Instrumentation & Measurements, Member-at-Large, Secretary North Jersey Section and various other positions. He is active with ELECTRO and has chaired many committees. He is a senior member of the IEEE and a Fellow of the Radio Club of America.

Mr. Graul presently serves as Vice Chairman of the North Jersey Section, Chapter Organizations Chairman of the New York Section, Editor of the RAB Publication *INTERFACE*. He is presently retired and keeps active by participating in IEEE functions.



Prathima Agrawal



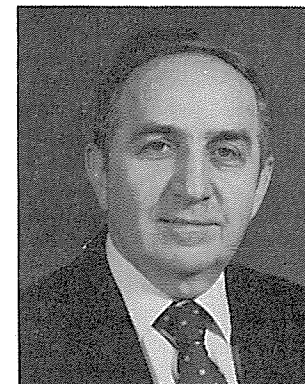
Yeheskel Bar-Ness



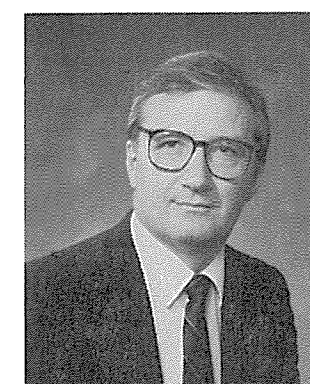
Lawrence Bernstein



Larry U. Dworkin



Joseph E. Geusic



Alastair M. Glass



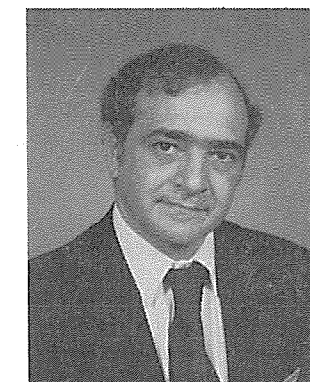
Gary J. Handler



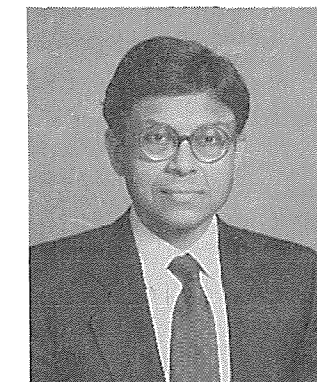
Robert L. Hartman



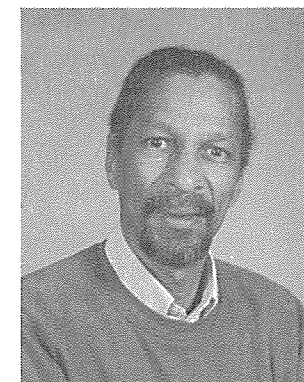
Serge Luryi



Nicholas Maxemchuk



Debasis Mitra



James West



Robert Sinusas



George D. Graul

## FELLOW AWARDS

### Prathima Agrawal

#### AT&T Bell Laboratories

"For contributions to computer-aided design and testing of integrated circuits."

### Yeheskel Bar-Ness

#### New Jersey Institute of Technology

"For contributions to the advancement of coherent communications and array processing for interference cancellation."

### Lawrence Bernstein

#### AT&T Bell Laboratories

"For leadership in the development and incorporation of computer systems in the U.S. National Telephone Distribution Plant."

### Larry U. Dworkin

#### Private Consultant

"For leadership in the application of fiber-optic technology."

### Joseph E. Geusic

#### AT&T Bell Laboratories

"For the invention of the Nd:YAG laser and contributions to the development of nonlinear optical materials, and magnetic bubble technology."

### Alastair M. Glass

#### AT&T Bell Laboratories

"For technical contributions and leadership in the engineering and development of electro-optic materials and devices."

### Gary J. Handler

#### Bell Communications Research, Inc.

"For contributions and leadership in the conception, planning, design, and implementation of network architectures and services."

### Robert L. Hartman

#### AT&T Bell Laboratories

"For contributions to the reliability of semiconductor lasers for optical-fiber communication systems."

### Serge Luryi

#### AT&T Bell Laboratories

"For contributions in the field of heterojunctions devices."

### Nicholas Maxemchuk

#### AT&T Bell Laboratories

"For contributions to Metropolitan and Local Area Networks."

### Debasis Mitra

#### AT&T Bell Laboratories

"For contributions to the mathematical foundations of computer and communication systems design and analysis."

### James West

#### AT&T Bell Laboratories

"For contributions to electret transducers and the understanding of charge-storage phenomena in polymers."

## Prathima Agrawal FELLOW AWARD

Prathima Agrawal, is a member of the technical staff at AT&T Bell Laboratories in the Computer Technology Research Laboratory, Murray Hill, N.J. At Bell Laboratories, she has worked on the architecture and design of microprocessors and fault-tolerant systems and several aspects of design automation including VLSI simulation and testing, hardware accelerators and design of CAD algorithms. Earlier, she was the supervisor of the VLSI methodology group in the Microprocessor Architecture Department at the AT&T Bell Laboratories in Holmdel, N.J. Her group was responsible for providing CAD tools for the design of 32-bit microprocessors and several peripheral VLSI chips.

Prior to working at AT&T Dr. Agrawal was with the Computer Science Department at the University of Illinois, Urbana (1969 to 1971), where she contributed to the design of the Illiac IV computer. During 1973-74, she was an Assistant Professor of Electrical Engineering at California State University, Northridge, California.

Dr. Agrawal has extensively published in several international journals. She received the distinguished technical staff award of AT&T Bell Laboratories in 1985, and a Best Paper Award in the AT&T Conference on Electronic Testing in 1987. She has served on the Technical Program Committees of the ACM/IEEE Design Automation Conference, IEEE International Conference on Computer-Aided Design (ICCAD) and IEEE International Conference on Computer Design; VLSI in Processors and Computers (ICCD). She served as the Vice Chairperson for CAD and Chairperson for VLSI architecture in ICCD'85 and ICCD'86, respectively. She was the Technical Program Committee Chairperson and the General Chairperson of ICCD'87 and ICCD'88, respectively.

Dr. Agrawal was the guest editor of the February 1986 issue of the *IEEE Design & Test* magazine devoted to the 1985 Design Automation Conference. She has co-edited a book, "Hardware Accelerators for Electrical CAD," with Tony Ambler (Brunel University, UK) and Will Moore (Oxford University, UK) published by Adam Hilger (Bristol, UK). Recently, she was invited by the United Nations to deliver technical lectures, on VLSI design principles, at several institutions in India.

Dr. Agrawal received the BE and ME degrees in Electrical Communication Engineering from the Indian Institute of Science, Bangalore, in 1964 and 1967, respectively. She received the MS degree in Electrical Engineering from the University of Rochester in 1969, and a PhD in Electrical Engineering from the University of Southern California, Los Angeles, in

1977. She is a Fellow of the Institution of Electronics and Telecommunication Engineers of India and a Fellow of the IEEE.

## Yeheskel Bar-Ness FELLOW AWARD

Yeheskel Bar-Ness is a Professor of Electrical Engineering and Director of the Center for Communication and Original Processing Research at the New Jersey Institute of Technology (NJIT), Newark, N.J. He teaches courses in communication systems adaptive arrays, phase-locked techniques, surface acoustic wave applications and data compression. His research interests include coherent communication, phase-locked systems, signal and image processing, and adaptive arrays and cancellors, surface acoustic wave application and discrete and optimal control.

Yeheskel Bar-Ness was born in Baghdad, Iraq in 1932 and immigrated to Israel in 1950. Up to 1960, he served in the Israeli Air Force as a Radar and Electronic Officer. From 1960 to 1966 he was with the Armament Development Authority, Israeli Ministry of Defense, working in the field of communication and control, and between 1969-1971 he held the position of Chief Research Engineer in Communication. From 1971 to 1973, he was Chief Engineer, Nuclear Medicine Department, Elscint Ltd., Haifa, working in the field of control and image and data processing. In the fall of 1973 he joined the School of Engineering, Tel Aviv University, as an Associate Professor of Control and Communication Systems. Since 1970 he has also been an adjunct faculty member in Electrical Engineering, the Technion, Israel Institute of Technology. Between September 1978 and August 1979, he was on sabbatical with the Division of Applied Mathematics, Brown University. From September 1979 to June 1981, he was a Visiting Professor with the Department of Systems Engineering and the Valley Forge Research Center, Moore School of Electrical Engineering, University of Pennsylvania. Also from 1981 to 1983 he was Professor of Electrical Engineering and Computer Science Department at Drexel University. In 1983 he joined Bell Lab as a member of technical staff.

Dr. Bar-Ness has published more than 80 papers in the field of communication and control. In 1974 he received the Kaplan Price, awarded annually by the Government of Israel to ten best technical contributions. In Dr. Bar-Ness case the award reads "For Innovation and Originality in the development as design of sophisticated medical equipment (video display and processing system)."

He received the BSEE and MSEE degrees from the Technion, Israel Insti-

tute of Technology in 1958 and 1963 respectively, and the PhD degree from Brown University, Rhode Island in 1969. Dr. Bar-Ness is a member of Sigma Xi, Eta Kappa Nu and American Math Society. He is a Fellow of IEEE.

## Lawrence Bernstein FELLOW AWARD

Lawrence Bernstein was named Executive Director of the Switching and Network Operations Division AT&T Bell Laboratories in June 1986. The name of the Division was changed to Network Management in an organization change effective March 1, 1988. He is responsible for network performance analysis and systems engineering, and development of operations systems.

Since joining Bell Laboratories in 1961, Mr. Bernstein has been involved in computer software and hardware design, including the design of algorithms for parallel processing. In 1968 he became head of the Basic Software Development Department, where he helped develop an intermediate level computer language. He was named a director in 1978, where he managed projects automating the business operations of the former Bell Operating Companies. Today the systems he developed are being used throughout the United States.

He received a bachelor's degree from Rensselaer Polytechnic Institute in 1961 and a master's degree from New York University in 1963, both in electrical engineering.

Mr. Bernstein is a senior member of the Institute of Electrical and Electronics Engineers, and also belongs to Tau Beta Pi and Eta Kappa Nu.

He holds one patent for logic design and one for software, and has published many articles on managing software development and network management.

## Larry U. Dworkin FELLOW AWARD

Dr. Larry U. Dworkin is a private consultant on C3 systems and telecommunications to both government and industry.

Prior to working as a private consultant, he was the Associate Director, C3 Systems and Applications, Center for Command Control and Communications Systems, U.S. Army Communications Command (CECOM).

Dr. Dworkin had been with the Army at Fort Monmouth since 1963. He has worked on a variety of Army communications systems including troposcatter radio, millimeter-wave radio, and optical atmospheric communications equipment. From 1975-1982, he was involved with fiber optic cable systems for Army

tactical and strategic communications systems. In 1980 he received the Meritorious Civilian Service Award from the Department of the Army for his contributions to tactical military communications.

He has published more than 40 papers, holds three patents, and has served as co-author on a text "Communication Channels Characterization and Behavior." He is a member of Sigma Xi, Tau Beta Pi, Eta Kappa Nu, the Optical Society of America, and the IEEE. In 1987 he received the IEEE Region 1 Award for technical leadership.

Dr. Dworkin received his BSEE from Worcester Polytechnic Institute in 1958, MSEE from Rensselaer Polytechnic Institute in 1960, and PhD (EE) from Polytechnic Institute of Brooklyn in 1969

## Joseph E. Geusic FELLOW AWARD

Joseph E. Geusic is head of Semiconductor Laser Development Department, AT&T, Murray Hill, N.J. His principal areas of expertise are in solid state physics, materials and device development. He has 61 published scientific papers, 27 issued patents and 3 patents pending. These publications and patents include work in electron spin resonance, masers, optical spectroscopy, lasers, nonlinear optics and magnetic bubble materials and memory devices. In addition to project management, he has experience in AT&T government and military contract proposals, negotiations and management. In research and managerial roles, he has also been involved in the use and programming of computers and has interacted extensively with individuals and groups responsible for device manufacture and systems development.

Dr. Geusic received a BS degree in Engineering Physics from Lehigh University in 1953 and MS and PhD degrees in Physics from Ohio State University in 1955 and 1958.

## Alastair M. Glass FELLOW AWARD

Alastair M. Glass is currently head of the Optical Materials Research Department of AT&T Bell Laboratories. He received a PhD in Physics from the University of British Columbia, Canada, and a BSc from the University of London, England.

Since joining Bell Laboratories, Glass has been involved with a wide variety of studies of optical and electrical effects in semiconductors, ferroelectrics and dielectric materials. He was recently elected to the National Academy of Engineering and is chair of the National

Materials Advisory Board Committee on Process Challenges in Compound Semiconductors.

## Gary J. Handler FELLOW AWARD

Mr. Gary J. Handler is Vice President, Network Planning with Bell Communications Research, Inc. He is responsible for conceiving, defining, developing and implementing technical plans for profitable Networks for the 90's for Bellcore's clients. His responsibilities range from developing an infrastructure of research, analyses, planning guidelines, and standards to providing vertically integrated implementation support to Bellcore clients from initial design to deployment of new network architectures, leading edge technologies and profitable services.

His organization is responsible for planning and implementation of such efforts as ISDN, the intelligent network and Broadband networks.

Mr. Handler started with Bell Telephone Laboratories in 1965 in Local Switching Systems Engineering. In 1980 he transferred to AT&T as Division Manager responsible for managing voice and data services implementation projects. In 1983 he became Assistant Vice President of the New Services Planning and Implementation Center at Bellcore. He assumed his current position in 1985.

Mr. Handler has a BS in Electrical Engineering from Columbia University, an MS in Electrical Engineering from the Massachusetts Institute of Technology, and a PhD in Operations Research from New York University. His publications have appeared in various Operations Research magazines, IEEE conference proceedings, and the ICCD. He is a member of the ICCD Board of Governors. He is the Deputy Chairman of the Exchange Telephone Group Committee of the Exchange Carrier Standards Association of the IEEE, and is a Fellow of the IEEE.

## Robert L. Hartman FELLOW AWARD

Robert Hartman is supervisor, Laser Reliability Group, AT&T Bell Laboratories, Murray Hill, N.J. At AT&T Mr. Hartman is presently engaged in studying the physics of III-V compound semiconductor devices, particularly InGaAsP/InP and (Al,Ga)As-GaAs double-heterostructure injection lasers. He has authored or coauthored 57 published papers and holds 11 patents. He has contributed extensively to the understanding of the degradation mechanisms in these devices and authored or coauthored several key papers in this field, especially

## REGION 1 AWARDS

### Robert Sinusas

### George D. Graul