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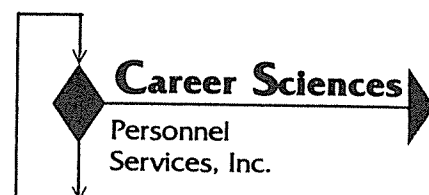
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The IEEE

Newsletter

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



North Jersey Section Calendar

January 11, 1989--"Measuring Soft Tissue Contour Information:--
Metropolitan Chapter of the Engineering in Medicine and Biology
Society, 7:30 PM, Rockefeller University, York Ave. at 66th St., Room 305,
NYC. Ben Caref (718) 270-1568.

January 12--"Problem Solving Methods And Techniques-First in a
series of three Seminars"--North Jersey Section Industry Application
Society, 7:00 PM, ITT Auditorium, 500 Washington Ave., Nutley, N.J.
Joseph Nelson (201) 866-9581.

January 12--"PACE Meeting: Engineers Out of Work"--North Jersey
Section, 7:30 PM, ITT Auditorium, 500 Washington Ave., Nutley, N.J.
Jacques Geyer (201) 393-2998.

January 23--"Understanding Pensions"--North Jersey Section
Young Engineers Committee, 7:30 PM, ITT Auditorium, 500 Washington
Ave., Nutley, N.J. Sam Benzacar (201) 881-1200.

January 25--"Transition Of Engineers To Managers"--New
York/North Jersey Chapter of the Engineering Management Society, 7:00
PM, Stevens Center Bldg., Stevens Institute of Technology, Hoboken, N.J.
(Buffet at 6:30 PM, reservations and fee required.) Jay Gilbert (201) 420-
5369.

February 15-April 12--"Optoelectronic Seminar Series-first of three
Seminars"--North Jersey Section IEEE & Graduate Student Assoc.,
NJIT, 323 Martin Luther King Jr. Blvd., Newark, N.J. Dr. Gerald
Whitman (201) 596-3232/3512.

February 16--"Operating Principles Of Semiconductor Lasers"--
North Jersey IEEE MTT-AP Chapter, 7:30 PM, ITT Auditorium, 500
Washington Ave., Nutley, N.J. Dick Snyder (201) 492-1207.

Publication No: USPS 580-500

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Editor..... M.M. Perugini
Business Manager..... A.M. Beattie

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(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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798-4403
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492-1207
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Member-At-Large..... David A. Dietsch
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Understanding Pensions

The IEEE North Jersey Section Young Engineers Committee will meet on January 23, 1989 to hear a talk on "Understanding Pensions." The speaker will be John Andrew Casazza, President of Casazza, Shultz and Associates, an energy consulting firm.

About The Talk

The Institute of Electrical and Electronic Engineers (IEEE), through its pension committee, has been working for so many years to improve the treatment of electrical engineers under current pension plans. Because of the typical electrical engineer's mobility and his need to change employment as national needs change, the engineer is at a severe disadvantage. Mr. Casazza will discuss this problem and what engineers can do about it.

The talk will cover:

- Differences between defined benefits and defined contributions plans.
- The effect of job changes on pension accumulations.
- How pensions are funded and their cost to employers.
- Who controls pension funds and to whom do they belong.
- Current issues of special interest to IEEE members that affect pensions.

Material regarding pension issues will be distributed.

About The Speaker

Mr. Casazza is an internationally acclaimed expert in the energy field. He was a corporate officer and executive for major companies and consulting firms. He has been responsible for expansion plans, economic and financial evaluations, merger studies and analysis, pooling and coordinating studies, co-generation project evaluation, inter company contract negotiations, and application of new technology. Mr. Casazza has been responsible for consulting projects in South America, Canada and Europe and has testified extensively before federal and state regulatory, legislative, and judicial bodies on many issues of national and local importance. He is the author of more than 35 publications on various energy topics. Mr. Casazza has been involved for over 40 years with the IEEE. From 1943 to the present, he has been active in the Power Engineering Society. 1970-1974 Mr. Casazza served on the Energy Development Subcommittee. In 1975 he became a member of the Energy Committee Board of *Spectrum* magazine. He has given testimony before congressional commit-

tees on behalf of the IEEE since 1979. From 1983 to 1985 he was a member of the IEEE United States Activity Board. Presently he serves on the IEEE Pension and Energy Committees.

Pensions are vital to all engineers with little or many years in the field of engineering. Think in the present about your future. So come and inform yourself on the different types of pension plans and how they work.

All Welcome

Members and guests are invited. A free buffet will be provided an hour prior to the scheduled talk.

Time: 7:30 PM, Monday, January 23, 1989. (Buffet starts at 6:30 PM.)
Place: ITT Auditorium, 500 Washington Avenue, Nutley, N.J.
Further Information/Reservation: Sam Benzacar (201) 881-1200; Tom DeNigris, 569-8282; Maitland McLarin (201) 335-6847.

Section Officers For 1989 Elected

The following slate proposed by the nominating committee for the 1989 North Jersey Section Executive Committee was elected at the December 7, 1988 meeting of the Section Executive Committee:

Chairman:	Howard Leach, Jr.
Vice Chairman-1:	Raymond Sears, Jr.
Vice Chairman-2:	George Graul
Treasurer:	David Perry
Secretary:	Richard Snyder
Member-At-Large:	Thomas De Nigris
	David A. Dietsche
	George Pick

At its November meeting, the Executive Committee decided that a mail ballot would not be required for the Election of the 1989 Slate of Officers if no petitions for additional candidates were received. No petitions were received.

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.

Seminars On Problem Solving

The North Jersey Section Industry Application Society is proud to present a series of three interactive seminars entitled "Problem Solving Methods And Techniques." The speaker, Mr. Joseph Nelson, will deliver lectures that are designed to provide fresh thought and new perspectives to the methods and techniques we may presently employ.

On January 12, 1989, the first of this series will be presented to define problem solving and introduce specific methods and techniques. The talk will describe new guidelines for the generic implementation of Problem Solving Methods and Techniques (PSMT) in your workplace.

The second segment will be presented in February, 1989, and will demonstrate how to apply the guidelines described in the first segment. This will enhance your methods and techniques for solving broad classes of problems ranging from R&D and systems integration through maintenance and marketing to policy making and motivation.

In the third segment, to be presented in April of 1989, the focus will be on applying PSMT to problems of broad interest. Problems will be solicited from the audience or may be provided to Mr. Nelson prior to this segment by calling him at (201) 866-9581.

The first segment will be at the ITT Auditorium, 500 Washington Avenue, Nutley, N.J. The locations for the remaining segments will be announced in The NEWSLETTER.

Mr. Nelson, in various capacities in industry and as a civilian engineer with the U.S. Navy, has directed the business and technology development of several companies, and has developed and managed significant programs for the Navy. He has relied on his ability to adapt technology from one field to another to satisfy market needs. He has supervised scientific and technical personnel and has conceived, developed and managed large projects. An Electrical Engineer by training, Mr. Nelson has worked in electronics, acoustics, sonar, instrumentation, telemetry, communications and systems engineering.

First Session: 7:00 PM, Thursday, January 12, 1989, ITT Auditorium, 500 Washington Ave., Nutley, N.J.

Second Session: February, 1989 - Time, date and location to be announced.

Third Session- April, 1989 - Time, date and location to be announced.

Additional Information: Joseph Nelson (201) 866-9581

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Center for Microwave and Lightwave Engineering at NJIT
North Jersey Section IEEE
& Graduate Student Association, NJIT
 present
The New Jersey Institute of Technology
OPTOELECTRONIC SEMINAR SERIES

PLANNING COMMITTEE

M. Ettenberg, DSRC; E. Gordon, Photon Imaging; W. Kosonocky, NJIT; R. Leheny, Bellcore; T. Li, AT&T; S. Nagel, AT&T; E. Niver, NJIT; I. Reingold, SCEE; G. Whitman, NJIT, J. Yardley, Allied-Signal.

I. APPLICATIONS OF HIGH SPEED LASERS
 February 15, 1989, Wednesday 3-6 PM, Theater

Fabrication and Characteristics of High Speed Lasers	Uziel Koren AT&T Bell Laboratories
Gigabit Per Second Digital Fiber Optic Systems	Nim K. Cheung, Bellcore
High Speed Modulation and Short Pulse Generation in Semiconductor Lasers	Gadi Eisenstein AT&T Bell Laboratories

II. FLAT PANEL DISPLAYS
 March 15, 1989, Wednesday 3-6 PM, Theater

Gas Discharge Displays	George Dick, AT&T Bell Laboratories
Electroluminescent Displays	Elliot Schlam, Sigmatron Nova
Liquid Crystal Displays	Arthur Firester David Sarnoff Research Ctr.

III. COMPONENTS FOR OPTICAL SYSTEMS
 April 12, 1989, Wednesday 3-6 PM, 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

Location: Seminars will be held at NJIT, 323 M.L. King Jr. Blvd., Newark, NJ.
 Theatre: 2/15/89, 3/15/89; Ballroom, Hazell Center: 4/12/89.

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

3-D Computer Imaging Of Soft Tissue

On January 11, 1989, the Metropolitan Chapter of the Engineering in Medicine and Biology Society will present a talk on "Measuring Soft Tissue Contour Information." The speaker will be Dr. Stanley M. Dunn, Assistant Professor in the Department of Biomedical Engineering at Rutgers University in Piscataway, N.J.

About The Talk

Dr. Dunn will summarize the steps in processing an image to reconstruct a surface patch of skin. He will then discuss the geometry of the inexpensive computer imaging system being developed and show how three-dimensional information could be recovered. The actual processing steps and algorithms used to locate the data to reconstruct the skin patch will be detailed.

Optional Pre-Lecture Get Together

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

Time: 7:30 PM, Wednesday, January 11, 1989 (informal get together (optional) 6:30 in Tower cafeteria).

Place: Rockefeller University, York Ave. at 66th St., Room 305, NYC.

Further Information: Ben Caref (718) 270-1568; Vijay Kowtha (201) 932-4803; Joe Bogovic (212) 241-8032; Edna Feher (212) 757-0610.

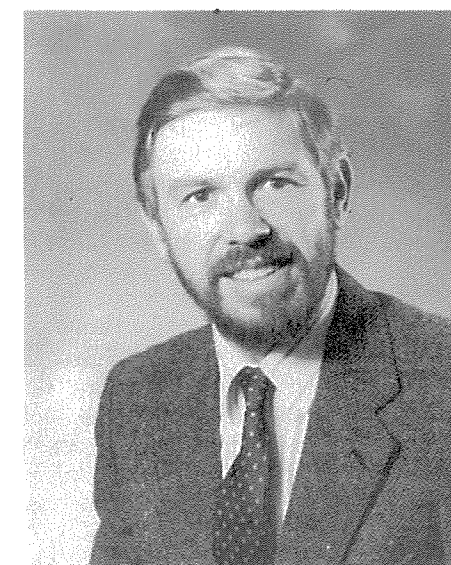
Operating Principles Of Semiconductor Lasers

The February 16, 1989 meeting of the North Jersey IEEE MTT-AP Chapter will feature a talk on "Operating Principles Of Semiconductor Lasers." The speaker will be Dr. Rodney Tucker, AT&T Bell Labs.

About The Talk

The emergence of wide-band semiconductor lasers has opened up new possibilities for the transmission of microwave signals by optical fiber. Semiconductor lasers with modulation bandwidths in excess of 15 GHz have recently been reported by a number of laboratories and devices with this level of performance should soon be commercially available.

This talk will provide an introduction to the operating principles of semiconductor lasers, and will review recent progress in laser modulation at microwave and milli-



meter wave frequencies. The intrinsic capabilities and limitations on device performance will be explored using optoelectronic models of the semiconductor laser. Microwave wide-band impedance matching considerations will also be considered.

About The Speaker

Rodney S. Tucker (S'72-M'75-SM-'85) received the BE and PhD degrees from the University of Melbourne, Australia, in 1969 and 1975, respectively. From 1973 to 1975 he was a Lecturer in Electrical Engineering at the University of Melbourne. He was a Harkness post-doctoral research fellow with the Department of Electrical Engineering and Computer Sciences, University of California, Berkeley from 1975 to 1976, and during 1976-1977 he was with the School of Electrical Engineering, Cornell University, Ithaca, N.Y. From 1977 to 1978 he was with Plessey Research (Caswell), Ltd., Allen Clark Research Center, England. In 1978 he joined the Department of Electrical Engineering at the University of Queensland, Brisbane, Australia, where he was a Lecturer and later a Senior Lecturer. Since 1984 he has been with AT&T Bell Laboratories, Crawford Hill Laboratory, Holmdel, N.J. His current research interests are in semiconductor optoelectronic devices for lightwave communications systems.

Members and guests interested in this subject are invited.

Free Buffet Dinner

There will be a free buffet dinner for attendees in the lobby at 6 PM. **Reser-**

ervations for the complimentary dinner are requested.

Time: 7:30 PM, Thursday, February 16, 1989.

Place: ITT Auditorium, 500 Washington Avenue, Nutley, N.J. (Pre-meeting dinner at 6:00 PM. **Reservations required.**)

Information/Reservations: Dick Snyder (201) 492-1207; Willie Schmidt (201) 284-2255.

Tutorial No. 3 On ISDN Protocol

The North Jersey Joint Computers and Communications Society Tutorial #3 will be on January 25, 1989 and the topic will be "The ISDN Protocol." The speaker will be Frank Lauria from Telcel.

The potential of an ubiquitous ISDN network has generated an intense interest in the ISDN protocol. Frank will cover areas such as: What is ISDN?; Origin of ISDN, ISDN today - current field trials and results; ISDN tomorrow - what we can expect; and a technical discussion of the protocol.

Frank Lauria is an Applications and Sales Engineer at Telcel in Shrewsbury, N.J. He is experienced in analysis and simulation of many current protocols (X.25, X.75, SNA, ISDN).

Time: 8:00 PM, Wednesday, January 25, 1989.

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

Further Information: Sven Sternung (201) 284-2111; Frank Lauria (201) 544-0033.

New Officer Slate For IAS

The North Jersey Section Industry Applications Society is pleased to announce the results of the election of new officers:

Chairman:	Vittal Rebbapragada
Vice Chairman:	Joseph Nelson
Secretary:	Maitland MacLaren
Treasurer:	Victor Vinkman
Publicity:	Les Gabriel
Membership:	Max Schramm
Programs:	Joseph Nelson

The new officers will assume their posts at the first meeting in January, 1989. Best wishes for an interesting and rewarding year.

Making Managers Of Engineers

The New York/North Jersey Chapter of the Engineering Management Society will hold a January 25, 1989 meeting on "Transition Of Engineers To Managers." The speaker will be Dr. Deborah Kezsbom of MRA Management Resources, Inc. **About The Talk**

In her talk, Dr. Kezsbom will examine the difficulties and challenges facing the engineer or technical specialist who enters a management position, and discuss the problems that new managers often experience in becoming more confident in communicating ideas to subordinates and colleagues, and in anticipating potential sources of organizational conflict and determining appropriate solutions.

About The Speaker

As president of MRA Management Resources, Inc., Dr. Kezsbom advises technical and management teams on project management techniques, software systems and implementation strategies. She is an expert in project team building approaches and developing project management systems.

Buffet Reservations

A buffet priced at \$5.00 will precede the meeting starting at 6 PM. **Reservations for the buffet are required by January 20, 1989.**

All Engineering Management Society members and non-members are welcome.

Time: 7:00 PM, Wednesday, January 25, 1989. (Buffet starts at 6:00 PM.)

Place: Stevens Institute of Technology, 4th Floor, Stevens Center, Hoboken, N.J. **Information/Reservations:** Jay Gilbert (201) 420-5369.

Engineering Management Society Announces Meeting Dates

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

- March 15 - Dr. Richard Donnelly - "R&D Management: Innovation Management."
- 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.

Professional Activities Session At 1989 PES Winter Meeting

The Public Affairs Council of the Power Engineering Society will sponsor a professional activities session on Monday afternoon, January 30, 1989 during the Winter Meeting at the New York Penta Hotel. The session will take place in the Georgian Ballroom from 2:30 to 5:00 PM and will feature the following speakers:

Dr. Edward C. Bertnolli, Director, Graduate Engineering Center, University of Missouri, Rolla; IEEE Vice President, Professional Activities; and Chairman, United States Activities Board (USAB). "USAB - Serving Members Professional Needs For 15 Years."

George F. Abbott, Director, Telecommunications Systems Engineering, Electrical & Computer Engineering Department, College of Engineering, North Carolina State University. "U.S. Competitiveness - Can The IEEE Make A Difference?"

Dr. Fred I. Denny, Vice President, Environmental, Fossil Fuels & Power Production, Edison Electric Institute; Chairman, IEEE Energy Committee; Member, PES Executive Board. "The Energy Committee's Role In Developing Future Strategies For Addressing Energy Issues Of Importance To Power Engineers."

William R. Tackaberry, Consultant; Chairman, Technology Activities Council IEEE, USAB. "How The Committees Of The Technology Activities Council Operate In The Area Of Multidiscipline Technology Policy Issues Important To IEEE/PES Members."

Moderator: Robert P. Noberini, Manager, Technology Transfer R&D, Consolidated Edison Co. of New York, Inc.; Chairman, USAB Professional Activities Council for Engineers.

Come and listen to these distinguished IEEE leaders as they discuss some of the most important issues facing the Institute, the profession and the nation. Find out how you, as an IEEE member, can make a difference in determining how your government will deal with some of the most challenging technological problems facing the nation today.

Joint Computer/Communications Society Chapter Announces Future Sessions SPRING 1989

Jan. 18, 1989	Neural Nets	ITT , Nutley	Sven Sternung
		Nutley	(201) 284-2111
Jan. 25	Protocol Tutorial #3	AT&T-BTL	Sven Sternung
	ISDN	Murray Hill	(201) 284-2111
Feb. 15	Flood Control	ITT	Alex Brown
		Nutley	(201) 284-2570
Feb. 22	Protocol Tutorial #4	AT&T-BTL	Sven Sternung
	CCITT X.25 et.al.	Murray Hill	(201) 284-2111
Mar .22	Cryptography	ITT	George Pick
		Nutley	(201) 884-6040
Mar. 29	Protocol Tutorial #5	AT&T-BTL	Sven Sternung
	IEEE 802.x (Tent.)	Murray Hill	(201) 284-2111
Apr. 19	Point/Point Microwave	ITT	George Parowski
		Nutley	(212) 884-6040
Apri. 26	Operating System	AT&T-BTL	George Pick
	Standards (UNIX)	Murray Hill	(201) 884-6040
May 24	MUMPS - A popular	TBD	Dave Perry
	language used by		(201) 325-8415
	hospitals and some		
	businesses		
May 24	Wiring	ITT	Jim Morgan
		Nutley	(201) 766-0969
May 31	Operating System	AT&T-BTL	Har Dyal
	Standards for PC's	Murray Hill	(201) 785-7561
June 21	Newark Airport	Airport	Dave Perry
	Communications		(201) 325-8415

1989 PES Winter Meeting Conference Information

The Joint Power Engineering Society and Industrial Application Chapters of the New York and Long Island Sections extend an invitation to all IEEE members to attend the 1989 PES Winter Meeting which is being held in New York. This Technical Conference is devoted to power apparatus and systems and will consist of approximately 90 technical papers and panel sessions on such topics as: transmission and distribution; rotating machinery; switchgear; power system relaying; energy development and power generation.

These will take place from January 30 to February 3, 1989 at the New York Penta Hotel. Other activities include: Sunday Informal Reception and Tea on January 29th; Plenary Session "Atmospheric Chemistry Update" on Monday, January 30th at 8:45 AM; Awards Luncheon on Wednesday, February 1st; two tutorial courses; inspection trips; and spouse activities, including a show at Lincoln Center. To save money and register in advance use the form below.

1989 Winter Meeting Advance Registration

Prepaid advance registration is being utilized in order to save you time and money at the 1989 Winter Meeting. Your pretyped badge will be waiting for you at the registration desk. The pre-registration fee is \$90 for all IEEE and ASME members. This represents a \$5 reduction from the \$95 meeting registration fee.

In addition to the advanced registration, you can also purchase a luncheon ticket for the Awards Luncheon on Tuesday at the rate of \$22 each and/or reserve participation in a tutorial course for \$70.

Please complete the form below and mail your check payable to: 1989 IEEE/PES Winter Meeting, 345 East 47th St., New York, N.Y. 10017-2394 and **must be postmarked no later than January 13, 1989.** Registrations postmarked after this date will not be processed. A check (U.S. Dollars) must accompany all registrations. Refunds are available if notice is received prior to January 27, 1989.

Registration at the meeting will commence Sunday, January 29, 1989 from 2 PM to 6 PM at the registration desk on the Mezzanine. Registration badges will be required for admission to all technical, panel, or tutorial sessions and inspection trips.

STATUS (Mark Boxes)	REGISTRATION FEES (U.S. DOLLARS ONLY)		REMITTANCE
	ADVANCE REGISTRATION	ADV. REG. & AWARDS LUNCHEONR	
IEEE-PES Member	[] 90.00*	[] 112.00	\$ _____
IEEE-NON PES Member	[] 90.00*	[] 112.00	\$ _____
ASME Member	[] 90.00*	[] 112.00	\$ _____
Non-Member	[] 140.00	[] 162.00	\$ _____
Spouse	[] 10.00	[] 32.00	\$ _____
Life Member & Spouse	[] NONE	[] 22.00 EACH	\$ _____
Student with I.D.	[] NONE	[] 22.00	\$ _____
Press	[] NONE	[] 22.00	\$ _____

TUTORIAL COURSES	DAY	TIME		FEE (U.S.) (In addition to Adv. Reg. Fee)
Distribution Automation	WED. (2/1)	8:30-5:00	\$70.00	\$ _____
Fundamentals of Load Management	THURS. (2/2)	8:30-5:00	\$70.00	\$ _____
TOTAL REMITTANCE (MUST BE IN U.S. DOLLARS)				\$ _____
*\$95.00 at meeting				

Name: _____

Firm, University or other Affiliation _____ PES Chapter Name _____

Mailing Address _____ IEEE Mem. No. _____

City _____ State _____ Zip _____

Permanent Home Address _____

City _____ State _____ Zip _____

Spouse's first name (if attending) _____
Other information (mark boxes)

- | | | | |
|-------------------------------------|---------------------------------------|---|---|
| <input type="checkbox"/> Utility | <input type="checkbox"/> Manufacturer | <input type="checkbox"/> IEEE Officer | <input type="checkbox"/> Author |
| <input type="checkbox"/> School | <input type="checkbox"/> Government | <input type="checkbox"/> PES Officer | <input type="checkbox"/> Panelist |
| <input type="checkbox"/> Consultant | <input type="checkbox"/> Marketing | <input type="checkbox"/> Committee Chairman | <input type="checkbox"/> Session Chairman |

The Awards Committee of the North Jersey Section reminds the membership that it's time to identify potential IEEE Fellows, and to begin work on the preparation of the material on the basis of which the IEEE Board of Directors, upon recommendation of the National Fellow Committee, will award the Fellow grade.

1. On April 30, 1989, the candidate must be a Senior Member. In addition, the candidate must have been a member in any grade for at least five years on January 1, 1989. Tenure as a member need not have been continuous, but the aggregate period of membership cannot be less than five years.

A "Fellow Grade Nomination Kit" is available for the asking from: Dolores Wright, IEEE Headquarters, 345 East 47th St., New York, NY 10017, (212) 705-7750. This kit contains quite a readable and informative "Guide" together with all the forms which the nominator must complete and distribute.

The North Jersey Awards Committee, which has the authority to approve the nomination on behalf of the North Jersey Section, is anxious to work with the nominator in preparing the strongest possible case for the candidate. Any member of the Awards Committee, as listed below, can provide additional information.

M. DiDomenico
Bellcore
435 South Street
Morristown, NJ 07960
(201) 829-4325

Barbara Kent, Long Island's PACE chairman, Sandra Farber and Larry Winkler of their Engineers Out of Work committee, will discuss the situation and their progress on Long Island. They will discuss their findings which include: data about E.O.W.'s needs, economic and family hardships, reasons for layoffs and a course of action.

Further Information: Jacques Geyer (201) 393-2998 days or Richard Tax (201) 664-6954.

If you have any questions, call (201) 461-0900 during working hours or (201) 797-4366 in the evening.

☐ Enclosed is \$10.60 ☐ Enclosed is \$12.72

Students and educators who wish more information, please call Charles McKeough, Villanova University, (215) 645-4978.

201-942-0558

Eight Half Day Tutorials Scheduled for Electro/89

The IEEE Metropolitan Sections Activities Council (METSAC) and Electro/89 will be co-sponsoring eight special-fee, one half day tutorials during Electro in the Marriott Marquis Ballrooms in New York City.

Registration for these tutorials must be accomplished with the coupon on the facing page. Included in each tutorial fee are course materials and registration to Electro. Since seating is limited, early sign-up is encouraged.

9:00 am to 12:30 pm, Tuesday, April 11 SUPERCONDUCTORS IN INSTRUMENTATION AND STANDARDS

We will start with an introduction to the basic principles of superconductivity and a discussion of the engineering characteristics of superconductors. The existing applications to electronics and instrumentation will be reviewed. Progress with the new high temperature superconductors will also be discussed and set in the context of what we have learned from experience with practical devices working at lower temperature.

This tutorial will be presented by Dr. Robert A. Kamper. Dr. Kamper, a native of Surbiton, England, received the BA, MA, and PhD degrees in Physics from the University of Oxford. He has authored more than forty publications dealing with electron spin resonance, superconductivity, superconducting devices and electromagnetic measurements. He is presently the Chief of the Electromagnetic Technology Division and Director of the National Bureau of Standards Boulder Laboratories.

1:00 to 4:30 pm, Tuesday, April 11 LEGAL CHALLENGES TO MANAGING IN THE WORKPLACE

The tutorial will highlight specific issues which have been faced by engineering managers including: successful intervention strategies for responding to employee complaints about sexual harassment; understanding medical issues which arise in the workplace such as sickness, pregnancy, childbearing and disability leaves; and the important legal considerations regarding performance appraisals, employee disciplinary procedures and separation processes. There will be a brief overview of the federal and state employment laws including race, sex, age and handicap discrimination, labor laws, employee privacy and wrongful discharge.

This is a hands-on workshop featuring individual and group case studies and exercises designed to develop practical methods for anticipating, preventing and dealing with issues which may arise.

Prior to the Electro Convention, participants in this tutorial are welcome to submit specific questions or issues they would like covered. Please submit your questions with your registration application.

This tutorial will be conducted by Susan W. Brecher, Esq., Director of Labor Relations at Cornell University's School of Industrial and Labor Relations in New York City. Ms. Brecher is a specialist in employment law matters, with an emphasis on Equal Opportunity Law. She has also served as in-house employment relations council at the American Broadcasting Company and the National Broadcasting Company.

9:00 am to 12:30 pm, Wednesday, April 12 INTELLECTUAL PROPERTY FOR ENGINEERS AND MANAGERS

The first two segments of this tutorial will focus on what ideas can be patented, how such patents can be obtained and strategies for best identifying and exploiting the technical and financial advantages of patents (Patentability - Breakthrough Sciences vs. Patentable Invention, Patent Strategy, Licensing Strategy).

The third segment of this tutorial will focus on inventors' rights and obligations. Most inventors are employed by organizations conducting research and development. Such inventors have specific rights and obligation in connection with their creative work. The following topics will be discussed: Scope and content of employment agreements, Right to

compete with a former employer, Enforcement, and Recommendations for avoiding litigation.

The organizer for this tutorial is Mr. John P. DeLuca, an associate in the law firm of Robbins & Laramie. Mr. DeLuca, who began his career as an electrical engineer, has had extensive experience in patent, trademark and copyright law as it applies to the areas of control systems, radar, optical fibers and aerospace technology.

Additional speakers include:

Mr. James R. Myers, a partner and head of the litigation group in the law firm of Robbins & Laramie. He represents both plaintiffs and defendants in litigation involving patent, trademark, antitrust, unfair competition and commercial issues.

Mr. Lawrence S. Pope, an associate in the law firm of Robbins & Laramie. Mr. Pope has been involved in the field of intellectual property for seventeen years and has been involved in all phases of obtaining licensing and enforcing patents.

1:00 to 4:30 pm, Wednesday, April 12 FIBER-OPTIC COMMUNICATIONS

Fiber-optic lightwave communication systems have evolved through four generations of direct-detection configurations. As their use expands, both over land and under sea, we must stand ready to consider the potential benefits of a fifth generation. Although it too would make use of single-mode optical fibers, it would rely on coherent (heterodyne) detection rather than on direct detection.

In this tutorial, we will examine the components of a typical lightwave system comprising a semiconductor light source, an optical fiber, and a semiconductor photodetector. The elements of modulation, multiplexing, and photonic switching will be considered and the performance of a simple binary digital optical communication system will be calculated. Incorporating the effects of receiver noise will permit us to determine the sensitivity of the system. Finally, the principles of coherent detection will be discussed and the tradeoffs with direct-detection systems delineated.

Hand-outs for this tutorial will include Chapter 22 of the forthcoming book *Fundamentals of Photonics*, by B.E.A. Saleh of the University of Wisconsin and M.C. Teich of Columbia University.

The speaker for this tutorial will be Prof. Malvin C. Teich of the Center for Telecommunications Research at Columbia University. Prof. Teich is presently pursuing research in the areas of quantum optics, photonics, optical and infrared detection, and sensory perception.

1:00 to 4:30 pm, Wednesday, April 12 FUNDING TECHNOLOGY DEVELOPMENT IN SMALL FIRMS: EFFECTIVE USE OF THE FEDERAL SBIR PROGRAM

Since 1893, over 10,000 new product/new process technology development projects involving more than 3000 small firms have received awards totalling almost \$1 billion under the federal Small Business Innovation Research program (SBIR).

By law, all federal agencies with an extramural R&D budget in excess of \$100M must commit 1.25 percent of that budget to their SBIR program. With the program authorized to continue until 1993, there are currently eleven (11) agencies involved calculating to a total annual SBIR commitment of \$350-\$400M.

To do well, qualified and competent small firms must know both — how the program works and

— how to make it work for them.

With extensive materials and a nuts-and-bolts orientation, two leading experts in the federal SBIR program will examine in detail: • background and structure of the program • common features and differences between the agencies • factors in program administration • relationship to the larger R&D effort • project design and proposal development • evaluation procedures and criteria • pricing the project • issues in ownership and protection • completing the process • the SBIR leveraging factor. Program objectives and achievements in the Air Force SBIR program (est. \$80M allocation in FY 89) will be given particular emphasis.

The speaker for this tutorial will include:

Ms. Ann Eskesen, President of Innovation Development Institute, Swampscott, MA. She is also Managing Editor of *InKnowVation*, a nationally distributed newsletter which has become for many the leading source of current information on effective use of the federal SBIR program. Ms. Eskesen was extensively involved in the passage and subsequent implementation of the SBIR enabling legislation. She has testified before the U.S. Congress on several occasions and in 1986 orchestrated the successful reauthorization of the SBIR program to 1993.

Mr. James R. Meeker, Director of New Concepts and Initiatives, Deputy Chief of Staff, Technology and Requirements Planning, Headquarters Air Force Systems Command, Andrews AFB, MD. As such, he has overall responsibility for the Air Force SBIR Program, the IR&D Program and initiation of innovative advanced development programs.

9:00 am to 12:30 pm, Thursday, April 13 HIGH DEFINITION TELEVISION

This tutorial will examine the strategies and tradeoffs of High Definition Television. It will include a detailed analysis of the three dimensional (horizontal, vertical and temporal) television spectrum. The consequences of vertical and temporal sampling and the nature of the artifacts and aliasing they introduce will be examined. Properties of the human visual system which can be exploited for bandwidth reduction will be explained, such as, diagonal resolution limitation, etc.

The presenters for this tutorial will include:

Mr. Jack Fuhrer, Director of Television Research, David Sarnoff Research Center. Mr. Fuhrer has received an award for his development of a CCD comb filter IC for color television. He is the holder of twelve patents for the new Advanced Compatible Television system.

Mr. John G.N. Henderson, Head of Systems Technology Research, David Sarnoff Research Center. Mr. Henderson is the holder of fourteen patents and has received four Achievement Awards.

Dr. Michael A. Isnardi. Dr. Isnardi is presently the Principal Investigator at the David Sarnoff Research Center for the Advanced Compatible Television System.

1:00 pm to 4:30 pm, Thursday, April 13 TRANSFER IMPEDANCE METHOD OF MEASURING THE QUALITY OF EMI GASKETED JOINTS AND SUBSEQUENT SHIELDING EFFECTIVENESS OF THE JOINT

The presence of Electromagnetic Interference (EMI) can cause catastrophic results in todays electronics. As an example, EMI can cause the pilot of one of the new fly-by-wire aircraft to lose control of the aircraft. As a result, the threat associated with EMI is becoming severe. Transfer impedance is a new test method being used by segments of the electronic industry to better understand the variables associated with protecting electronic equipment from radiated EMI.

The presentation examines transfer impedance testing from its theory to practice. Anomalies associated with transfer impedance testing as well as shielding effectiveness testing is thoroughly examined and documented. Variables associated with the selection and use of EMI gaskets and the joint surfaces is examined for shielding quality and reliability. The presentation will also correlate transfer impedance test results with shielding effectiveness of a gasketed cover. The difference between the shielding effectiveness of a cover as a function of a lightning strike and a wave striking a cover is documented and explained in detail. This includes examples of currents and voltage waveforms coupled to circuits as a function of the currents induced onto the shielded covers. Since the current and voltage waveforms coupled to the circuits is a function of wire treatment, a number

of variables associated with wire treatment will be investigated and documented.

The speaker for this tutorial will be Mr. George Kunkel.

Mr. Kunkel has worked as an engineer in Electromagnetic Effects (EMI, TEMPEST, EMP, Lightning, and RADAZ) design for 30 years, 15 years has been as an engineering consultant. He is presently President and Chief Executive Officer of Spira Manufacturing Corporation.

He is a Senior member of the IEEE, is past Chairman of the Technical Committee on Interference Control for the EMC Society of the IEEE, and has published numerous papers on grounding, bonding, shielding and filtering.

He holds numerous U.S. patents and is listed in Marquis Publications' *Who's Who in Finance and Industry* and *Who's Who in the World*.

1:00 pm to 4:30 pm, Thursday, April 13 NEURAL NETWORKS — MODELS AND HARDWARE IMPLEMENTATIONS

Neural network models are receiving widespread attention as new computing architectures for applications such as pattern recognition and machine learning. To obtain the full benefit of these models, special-purpose hardware must be built. Since simulations of the highly interconnected neural networks on standard computers are very time-consuming and are far too slow to be considered useful. The main difference between the various circuits is the complexity of their interconnections. They vary from simple fixed-value resistors to processors that update their value automatically. Complexity has to be traded off against the number of interconnections that can be put on a chip. Micro electronic chips built so far contain between a few dozen and a few thousand interconnections.

This tutorial will cover:

- Introduction — how Neural Networks work
- "Adaptation: and Learning from Examples"
- Applications to real-world problems
- Neural Network custom VLSI chips
- Limitations of Neural Networks

Attendees will receive a copy of the textbook *Neural Information Processing Systems*, edited by Dana Anderson, published by AIP, New York, 1988, worth \$77.50.

The speakers for this session are:

Dr. John S. Denker, a member of the technical staff at AT&T Bell Laboratories. His current work is centered on combining ideas from biology, physics and computer science in order to devise new types of information processing systems. He is the author of over 20 technical papers and the editor of the book *Neural Networks for Computing*.

Dr. Hans Peter Graf, a member of the technical staff at AT&T Bell Laboratories, who is conducting research on collective computing systems. He is the designer of several micro chips which implement neural network models.

Electro/89 Tutorials Registration		
Advance Registration Fees	IEEE/ERA	Non-Member
Legal Challenges	\$ 75	\$130
Superconductors	\$135	\$190
Intellectual Property	\$ 90	\$145
Fiber Optic Communications	\$165	\$220
Funding Technology Development	\$105	\$160
High Definition Television	\$120	\$175
Transfer Impedance Method of	\$150	\$205
Neural Networks	\$180	\$235
ADD \$50 MORE TO EACH REGISTRATION FOR THOSE NOT RECEIVED BY MARCH 27, 1989.		
PLEASE CIRCLE YOUR TUTORIAL SELECTION.		
One registration per coupon please, xerox copies of coupon acceptable.		
Name_____		
Company_____		
Address_____		

Telephone_____		
Enclosed is a check for \$_____ for the tutorial indicated, payable to IEEE METSAC, 614 Hammond St., Chestnut Hill, MA 02167. Registration will not be accepted without payment. Names are required for registration.		