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Newsletter

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

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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.

SEVEN FELLOWS

New Fellows of the North Jersey Section are:

DR. GEORGE BAHDER
RENE CASTENSCHIOLD
ERIC O. FORSTER
AKIRA HASEGAWA
ALFRED U. MacRAE
LEO SCHENKER
HAROLD N. SCHERER, Jr.

SECTION BANQUET – MARCH 14, 1979

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 two years, we are returning to the Chanticler in Millburn. The affair is scheduled for Wednesday evening, March 14, 1979. Tickets are priced at $15 per Member and guests and $17.50 per non-member and guests, and includes a complete prepaid Cocktail Hour preceeding dinner.

Reservations are required by March 5, 1979. Complete the reservation form below and include it with your payment. If any additional information is required concerning the Banquet, contact Alan Stolpen at 242-2600 X-463 or 687-9226 (Evenings).

Use the form below for Banquet reservations enclosing a stamped self-addressed envelope. Reservations required by March 5, 1979. Mail reservation request to:

Alan H. Stolpen
2037 Balmoral Ave.
Union, N.J. 07083

Enclosed is _____ Please forward _____ tickets (make checks payable to North Jersey Section IEEE) to:

Name: _____

Address: _____

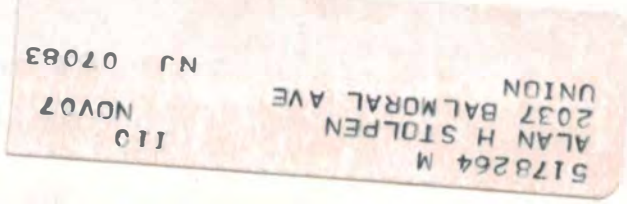
_____ Zip: _____

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

_____

_____

_____ _____



Microwave FET's – What's Next

"Microwave FET's – What's Next" is the subject of the January 11, 1979 meeting of the Microwave Theory & Techniques Society. The meeting is jointly sponsored by the North Jersey MTT/AP Chapter and the Jersey Coast MTT/ED/QEA Chapter and will hear Dr. Charles A. Liechti, MTT National Lecturer.

Over the last decade, microwave GaAs FET's have made dramatic advances in low noise and efficient power amplification. These advances will be highlighted with emphasis on practical applications.

Looking further ahead, it is important to realize that GaAs technology holds the key to microwave monolithic-integrated circuits. Monolithic digital circuits with gigabit-per-second data rates, PSK modulators, wide-band amplifiers and complete receiver front-ends are beginning to emerge. These developments will have significant impact on microwave system capability and cost effectiveness in the next decade. "GaAs IC's: How do they work, why do we need them, what can they do, and where do we go from here?" These and related questions will be covered in the presentation.

Charles Liechti received the Ph.D. degree in electrical engineering from the Swiss Federal Institute of Technology, Zurich, in 1967. He joined Hewlett-Packard Company in 1968. Since 1971, he has been responsible for the development of GaAs FET's, microwave amplifiers and GaAs digital IC's at HP's Corporate Solid-State Laboratory in Palo Alto, California.

Dr. Liechti received outstanding contributed paper awards at the International Solid-State Circuits Conference in 1973 and 1974. He also received the Microwave Prize jointly with R. Tillman for a paper on GaAs MESFET amplifiers in 1975.

Time: 8 PM, Thursday, January 11, 1979.
Place: Monmouth College, Cedar Ave., West Long Branch, N. J. (201) 222-6600. Edison Science Building, Room E2.
Pre-Meeting Dinner: 6 PM, "Old Orchard Country Club", Monmouth Road, Eatontown. For reservations call Rose Migliara, 554-4016.
Additional Information: E. W. Niemiec, 284-2758.

SPOTLITE ON NORTH JERSEY

Bits and bytes and ROMS and RAMS. To us power guys that sounds like a nursery rhyme. But we actually have a group of people in our North Jersey Section who understand that lingo. They belong to our Computer Society and they are slowly dragging the rest of us out of our comfortable niches and forcing us to face up to the complexities of computers. The chief RAM (is that your title, Frank?) is Frank Kruglinski.

Frank is what you might call a "well rounded" engineer. No, he doesn't weigh 300 pounds! That's not what I meant. But he did graduate from Stevens with a Bachelor of Engineering Degree which is about equivalent to a Degree in Mechanical Engineering. Then his first job was in chemical engineering. Then he discovered electricity and became interested in computers. Now he runs Logic Engineering, a company that designs custom process control systems using microcomputers.

He also runs our North Jersey Section Computer Society and it is easy to see Frank's influence on the Society. First, the group is hardware oriented. Also it is oriented toward application of microcomputers in systems. And sometimes they talk about design of computers.

Two recent meetings reflect Frank's broad view. One featured two attorneys who spoke about legal problems that affect small businesses. Another covered a holistic (Do you know what that means?) approach to computer system design.

Organizationally, the Computer Society is affiliated with 17 other societies and is a member of the American Federation of Information Processing Societies. Those computer guys are everywhere!

Our computer group meets on the third Thursday of each month. If you are interested in discussing mini-computer application, look for the meeting announcements in this Newsletter or call Frank at 447-3663.

STATEMENT OF OWNERSHIP, MANAGEMENT AND CIRCULATION

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Other Than Mail Subscriptions	0	0
Mail Subscriptions	4708	4699
Total Paid Circulation	4708	4699
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Total Distribution	4744	4727
Office Use, Left-Over, Unaccounted, Spoiled	175	173
TOTAL	4919	4900

IEEE NORTH JERSEY SECTION LECTURE SERIES – SPRING, 1979

CMOS TECHNOLOGY AND APPLICATIONS

TUESDAYS,

10 Sessions, 7:00 PM to 9:00 PM, Starting March 20, 1979
Somerset County Vocational High School
Somerville, N.J.

Group Sponsor:

John Van Savage, Business (201) 328-4667/4843;
Home (201) 985-2084

Instructors: Roger Stewart and Richard Funk of RCA Semiconductor.

For Whom Intended: The practicing electronic design engineer who is directly involved with various systems and end products.

Course Objectives: To teach the engineer how to use CMOS chips in his design applications, how to read data sheets, design interfaces, test and debug.

Course Credit: Two CEU will be awarded for satisfactory completion.

(1) March 20 – INTRODUCTION – History and trends in CMOS development, 4000 series, high voltage B series, dielectric isolation, C^2L, SOS, NMOS and bipolar, VLSI, characteristics.

(2) March 27 – CURRENT TECHNOLOGY – Structure of MOS devices including parasitic diodes, SCR effects, capacitors, etc. Design and layout procedures for commercial and military ICs.

(3) April 3 – MEMORY SYSTEMS – Special features of CMOS, RAM's, EAROM's, and ROM's. Interpretation of data sheets and design of efficient high speed memory systems.

(4) April 10 – MICROPROCESSORS AND I/O CIRCUITS – Survey and comparison, system design, use of I/O support devices such as latches, buffers, UART's, etc.

(5) April 17 – TIMEKEEPING – Design of ultra low power battery operated systems such as heart pacers, controllers, timers, and phase locked loops, oscillators, counters, and PLA's and watch ckts.

(6) April 24 – NON-LINEAR APPLICATIONS – A-D converters, operational amplifiers, high current drivers, power converters, and voltage regulators.

(7) May 1 – INTERFACING – How to use CMOS chips with switches, sensors, electro-optical devices, standard interface circuits for I/O parts of integrated circuits.

(8) May 8 – COMMUNICATIONS – Design of communication systems and related applications.

(9) May 15 – QUALITY CONTROL – Principles of accelerated life testing, MTBF, and failure analysis for CMOS applications.

(10) May 22 – HIGH RELIABILITY SYSTEMS – Advantages of CMOS, application design for worst case, protection from transients and nuclear radiation. Course wrapup and predictions for VLSI applications.

Fees: IEEE Members $50; Non-IEEE members $100.

(See registration form on next page)

PREPARING THE TECHNICAL PRESENTATION

MONDAYS, 6 Sessions, 7:00 PM to 9:00 PM, Starting March 5, 1979
ITT Avionics Auditorium
500 Washington Ave., Nutley, N.J.

Instructor: Tracy T. Franz, Bell Laboratories.

(1) March 5 – ORGANIZING THE PRESENTATION – Methods for making a concise and clear presentation covering introduction, body, and conclusion.
(2) March 12 – HOW TO TAILOR YOUR SPEECH TO FIT THE AUDIENCE – How to tell them what is in it for them, point of view, jargon, risk of failure.
(3) March 19 – HOW TO INTRODUCE A SPEAKER – Control panel discussions, set mood and expectations, focus on subject matter and establish expertise.
(4) March 26 – VISUAL AIDS – Creation and use of superior and effective aids, transparencies, flip charts, chalk talk.
(5) April 2 – VISUAL AIDS CONTINUED – Display format, color, amount of detail, room layout, illumination and interaction.
(6) April 9 – DELIVERY TECHNIQUES – How to deliver in a convincing manner, body language, facial gestures, eye contact, microphone usage.
Fees: IEEE Members $30; Non-members $60.

IS YOUR BUSINESS IN THE FUTURE?

MONDAYS, 6 Sessions, 7:00 PM to 9:00 PM, Starting April 16, 1979
ITT Avionics Auditorium
500 Washington Ave., Nutley, N.J.

(1) April 16 – OVERVIEW – A general discussion to help each individual decide if their own business is in their future.
(2) April 23 – ASPECTS OF INCORPORATION, PROPRIETORSHIP, PARTNERSHIP – How to do it, licenses required, which state, operating in more than one state, self incorporation, buying in another business.
(3) April 30 – BOOKKEEPING – Records for local, state, and federal governments, other advantageous records.
(4) May 7 – ADVERTISING PROMOTION – How to get known, promoting yourself, ethics of advertising.
(5) May 14 – HOW TO PUT TOGETHER ATTRACTIVE COPY – Art work, textural materials, cards and brochures, proposals, reports.
(6) May 21 – HOW TO OBTAIN JOBS – Source of information, small business assistance, methods of contacting prospective clients, how to grow.
Fees: IEEE Members $30; Non-members $60.

REGISTRATION FORM

Mail to: *Leonard Gardner, 7 Acorn Place, North Caldwell, N.J. or phone (201) 328-3450/6416*
Make checks payable to "North Jersey IEEE"

Please enroll me in the following course(s):

- ☐ PREPARING THE TECHNICAL PRESENTATION; Mondays, 7:00 PM to 9:00 PM, at ITT in Nutley, March 5—April 9, 1979; Members $30; Non-members $60.
- ☐ IS YOUR OWN BUSINESS IN YOUR FUTURE; Mondays, 7:00 PM to 9:00 PM, at ITT in Nutley, April 16—May 21, 1979; Members $30; Non-members $60.
- ☐ CMOS; Tuesdays, 7:00 PM to 9:00 PM, at Somerset County Vocational High School (near intersection of 202, 206, and 287), March 20—May 22, 1979; Members $50; Non-members $100.

Name:_____ Company: _____

Address: _____ City, State, ZIP: _____

Phone: _____

Personality Of The Successful Engineer

A joint meeting of the Microwave Theory & Techniques Society (MTT/AP) and Professional Activities Committee (PAC) of North Jersey Section on January 24 will deal with "The Personality of the Successful Engineer." The speaker will be Dr. Ernest Wantuch of Fairleigh Dickinson University.

Research evidence relevant to the topic will be presented with emphasis on the personality of the beginning engineer and that of the successful executive.

Personal observations will be presented concerning longitudinal personality changes during the careers of successful as well as unsuccessful engineers.

Current views of personality will be discussed with the individual characteristics that are included in that concept. Various definitions of success will also be considered.

Dr. Wantuch holds Ph.D. degrees in Physics and Clinical Psychology. His engineering background includes the position of Director of Engineering of the Airtron Division of Litton Industries. He is presently Professor of Electrical Engineering at Fairleigh Dickinson University and Consultant to Premier Microwave, Inc.

His psychology background includes employment at the Veterans Administration Hospital, East Orange, New Jersey, and at their Day Treatment Center, Newark, New Jersey. He is presently a Family Therapist with the Jewish Family Service, Hackensack, N. J.

For further information, contact E. W. Niemiec, ITTDCD, 284-2758 or R. Tax 391-9075 (After 6 PM.).

Free refreshments will be served.

Time: 7:30 PM, Wednesday, January 24, 1979.
Place: ITT Conference Auditorium, 500 Washington Avenue, Nutley, N. J.
Pre-Meeting Dinner: 6:00 PM, Jade Fountain Restaurant, Clifton, N. J. (Off West-bound side, Route 3).

Magnetic Properties Of Metallic Glasses

At the Magnetics Chapter of the Princeton Section's meeting to be held Thursday, January 25, 1979, "Recent Developments in the Soft Magnetic Properties of Metallic Glasses" will be discussed by R. Hasegawa, Corporate Development Center, Allied Chemical Corporation.

Two major aspects of the soft magnetic properties of metallic glasses, i.e., high magnetic permeability and high saturation induction, are discussed. Recent development in the area of high permeability materials is centered around the zero-magnetostriction Co-rich metallic glasses having Si and B as metalloids. The heat-treated materials studied thus far show low-field magnetic properties comparable or superior to those of commercial supermalloy. Attractive high saturation induction metallic glasses are found in the system Fe-B-Si. Core loss of these materials could be as low as 1/5 of that of the widely used power transformer materials grade M-4 silicon steel.

Time: 8:15 PM, Thursday, January 25, 1979.
Place: Auditorium, Administration Building, Allied Chemical Corporation, Columbia Road & Park Avenue, Morristown, N. J.
Pre-Meeting Dinner: 6:00 PM (5:30 for bar), Rod's 1890's Ranch House, Route 24 at Convent Road, Convent Station, N. J.
For Information Call: P.F. Tumelty, 455-4984, or R. Hasegawa, 455-4307.

Students Grow

Mr. Albert Ross
Department of Electrical Engineering
New Jersey Institute of Technology
323 High Street
Newark, N. J. 07102

Dear Mr. Ross:

I would like to congratulate your Branch for an outstanding membership promotion campaign. According to our records, your student group had recruited 71 new members as of November 15. This qualifies the Branch for a TI 57 programmable calculator in the "60 or More" category.

I encourage the Branch and its officers to keep up the good work. Should this office be able to be of assistance, please feel free to contact us.

Sincerely,
Richard M. Aseltine
Manager
Student Services

IRE PROCEEDINGS

Yup, that's right. IRE! Mr. L. A. Backer, a Life Member in the North Jersey Section, has a complete set of IRE Proceedings from July, 1928 through 1962.

If you would like to have them, call Mr. Backer at 201-627-1160 during business hours.

PAC NEWS

January Highlights

PAC Meeting at ITT Conference Center, Nutley, N. J., January 17 at 7:30 PM. We could use a little assistance from some of the engineers in our section. Only a few hours distributed over a few months would be helpful. The task is to monitor and study some of the student recruiting methods in New Jersey. Some members contend that the high school students are not being given all of the facts about the engineering field. Your help will be appreciated.

More manpower is required if we wish to get some Constitutional amendments on the Ballot this year.

Don't miss "The ENGINEERING PERSONALITY" meeting. Many thanks to Gene Niemiec and Hy Goldman for putting together this joint MTT/AP-PAC meeting for January 24. (See meeting notice in this issue).

Bob Sinusis has returned from a two year tour in Algeria to re-join our Committee. He will report on the December, Dallas, National PAC Workshop at our regular January meeting on January 17.

Engineer Surplus

While some yell "Engineer Shortage" and the D, S & E count want ads to confirm shortage reports, more conditions indicate that a surplus of engineers exists. Economically speaking, in a free market, when a commodity is in short supply its value or price increases. When a surplus exists, the price goes down or at least it does not increase with inflation. Today, nothing appears to be free, especially the market for engineers. Engineer shortage propaganda and heavy student recruiting have more than taken their toll here.

Most of us are aware that man made controls are introduced to effect the price of commodities such as wheat, etc. These controls usually increase prices of a product or at least protect the price of the product. The controls that affect engineers' salaries, benefits, etc., work in opposition to the interests of todays engineer because the controls are induced by non-engineers and not by the engineers themselves.

Here is an example of a few figures that indicate that a surplus of engineers still exists and has for many years. This example refers to the current per diem subsistance rate paid to engineers by different companies in various parts of the country.

Honeywell	$8.00 per day
Magnovox	$8.00
IBM	$10.00
McDonnell Douglas	$12.00
Federal government employees	$35.00

The $8 per diem figure is still not uncommon although it was typical during the 1950s. Now, some twenty years later, we find the same rate still prevalent. It is also interesting to note that the per diem figures apply to degreed engineers working on government funded projects. After checking further, it was found that some per diem rates for federal employees in certain cities are $55 per day, more than six times the low rate for engineers.

These figures can last or even get worse as long as engineers are available to work under these ridiculous conditions. A point to be made here is that employees of the federal government have a voice and engineers need one. Assuming that the pie is only so big, we must remember, if we want a piece of it we must go after it. If it means reducing engineering student enrollment by making the public more aware, then this will be one step we must take. Curtailing the engineer surplus will effect all conditions.

In our example we see what has happened in the last twenty years. What will happen in the next twenty years? It could get worse. Much of what happens is up to us and our efforts. Leo Young, VP, IEEE said, "It is up to all of us to make ours a more rewarding profession."

Note: There are other parameters that are indicative of the engineer surplus. If you are aware of them please notify us by writing to the editor or by attending a PAC meeting.

Salary Survey

The Canaveral Section's "Impulse" provided this data and the following editorial.

SALARY SURVEY

As food for thought we present the following wage scales for technicians under Service Contract at Patrick AFB at KSC. Does your salary match these technician's salaries?

Technician	Now	$18,137
(40 Hour Week)	June '79 - '80	$19.406
"A" or Lead Technician	Now	$18,928
(40 Hour Week)	June '79 - '80	$20,259

HOW YOUR COST OF LIVING HAS INCREASED

DATE	COST-OF-LIVING				
		7/70	1.163	7/74	1.471
7/67	1.000	7/71	1.218	7/75	1.623
7/68	1.042	7/72	1.253	7/76	1.716
7/69	1.098	7/73	1.327	7/77	1.807

Wage Busting

You won't find "wage busting" or "wage strangulation" in Webster. These terms are a product of the space age - more specifically a product of the Service Contract System.

Service Contracts are contracts let by the government at government installations, subcontracting a substantial portion of the work to the Service Contractors. Engineers are the real victims of this system, since they are the only workers not covered by the Service Contract Act. The salaries paid engineers by Service Contractors are as much as 30% below the prevailing wage of non-service contractor engineers in the area.

What is "Wage Busting"? "WAGE BUSTING IS THE PAYMENT OF A SALARY SIGNIFICANTLY BELOW THE PREVAILING WAGE". Note the difference in point of view with that expressed by George Monroe, President of Planning Research Corporation (PRC), a major Service Contractor, as quoted in the June 1977 IEEE "Spectrum". "If a man made $20,000 in 1972 and zero dollars in 1973, and then was hired by us in 1974 for $15,000, it's an interesting philosophical question whether we decreased his wages or increased it. Did he go from $20,000 to $15,000 or did he go from zero to $15,000?" Indeed, according to the IEEE "INSTITUTE" of April 1978, PRC hired an engineer, who previously had earned in excess of $21,000, then was unemployed for 3 months, at a starting salary with PRC of $10,700.

What is "Wage Strangulation"? "WAGE STRANGULATION" IS THE PRACTICE BY WHICH A SERVICE CONTRACTOR WITHHOLDS COST-OF-LIVING RAISES FOR AN EXTENDED NUMBER OF YEARS, IN THE FACE OF A STEADY INCREASE IN THE NATIONAL COST OF LIVING. As an example we cite Federal Electric Corporation, a Service Contractor that held a Service Contract over the period 1970 to 1977. During that time the cost of living increased some 60% and other workers in the area received yearly cost-of-living increases, while the engineers working for the Federal Electric Corporation did receive any cost-of-living increases. That is "Wage Strangulation", a practice that is prevalent in the Service Contract System and not confined solely to the Federal Electric Corporation.