EDITOR'S PROFILE of this issue

from a historical perspective …

with Paul Wesling, SF Bay Area Council GRID editor (2004-2014)

April 1973:

Cover: The HP-35 handheld calculator is introduced. More on page 8.

p. 2: Jean Helmke celebrates 10 years as our IEEE office manager. The office is at 701 Welch Road, adjacent to the Stanford Hospital.

Archive of available SF Bay Area GRID Magazines is at this location:
https://ethw.org/IEEE_San_Francisco_Bay_Area_Council_History

At time of scanning, the bound volumes are held by Paul Wesling. April, 2025 Contact p.wesling@ieee.org

SAN FRANCISCO SECTION THE INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS, INC.

Grid

APRIL 1973

LOOK FOR BALLOT INSIDE

Grid

volume 19
number 6

APRIL 1973

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San Francisco Section Office, IEEE
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Telephone: (415) 327-6622

Jean Helmke, Office Manager

1972-73 San Francisco Section Officers
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THE COVER STORY

With three important meetings on the subject of Minicomputers listed in this issue of the GRID, what better cover picture than a close-up of the instrument itself?

First we call your attention to the important three day Western Region Conference in Honolulu May 2, 3 and 4.

Then we have the Joint Power Engineering Society/Golden Gate Subsection meeting April 10 at the San Francisco Engineers Club.

A three day Minicomputer Workshop on April 18, 19 and 20 is jointly sponsored by the Computer Society, The University of Santa Clara, and The Technology Learning Corporation.

With the price of groceries on the rise, who knows but what we will see housewives carrying them around as they do their weekly shopping?

LAST CALL

The May issue of the GRID is the last until September. Deadline for May-June news is April 30, IN THE OFFICE!

YES–VIRGINIA, THERE IS A SANTA CLAUS, ALSO A BUSY SAN FRANCISCO SECTION IEEE OFFICE

Located at 701 Welch Road in Palo Alto. (Address and phone number in masthead). It is managed by genial Mrs. Jean Helmke, who for the past ten years has done an outstanding job of keeping the records straight for the annual change of officers in the Section, three Subsections, and 24 individual Groups and Societies.

The Section mail all routes through the office, and Jean sees that it is forwarded immediately to the proper person or group. All the meeting announcements are collected by Jean, who then develops the Calendar.

What can you do to help? Get your meetings data in on time. You will find Jean most cooperative and helpful with your IEEE questions.

EMB – NEW METHODS IN APPLYING MAGNETISM TO CANCER AND BLOOD FLOW PROBLEMS

Magnetic resonance measurement techniques have been applied to benign and malignant tumors starting in 1971. A significant difference in both the T1 and T2 values for the two types of tumors has been observed. More recently, malignant tumors in live mice were shown to exhibit substantially different magnetic relaxation times than normal tissue. Our magnetic relaxation measurements in normal and leukemic blood samples also exhibit substantially different T1 values. There are some anomalies in correlating these experiments by three different groups of researchers, and delineation of the similarities and departures will be discussed.

The major blood flow measurement problem is the non-invasive determination of flow distributions within the body. Using techniques which originated in the U.C. laboratory of Dr. Melvin Calvin, we can now measure blood flow distributions in fingers. Work towards extending these measurements throughout the body will be discussed. These two rapidly developing methods will be presented by one of their pioneers, Professor J. R. Singer, of the University of California in Berkeley.

IAS/GGSS WINETASTING AND BARBECUE

On Friday, May 4th, the IAS and Golden Gate Subsection will enjoy their final meeting with winetasting and a steak barbecue.

This festive affair will take place at the beautiful Paul Masson Mountain Winery, located in the foothills outside of Saratoga.

The Golden Gate SS election of officers will be held at this meeting.

Reservations must be received by April 27th. See calendar for details.

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BALLOT FOR ELECTION OF OFFICERS, SF SECTION, 1973-74

(See background of candidates in this issue)

CHAIRMAN:

D. W. Martin, Vidar Corp. ☐

VICE CHAIRMAN:

E. D. Jackson, Pacific Telephone ☐

SECRETARY:

R. J. Whittier, Intel Corp. ☐

TREASURER:

(vote for one):

R. W. Anderson, Hewlett-Packard Co. ☐

J. M. Shulman, Westinghouse Electric ☐

SECTION/WESCON DIRECTOR:

L. G FitzSimmons, Pacific Telephone ☐

MEETING CALENDAR

AEROSPACE & ELECTRONIC SYSTEMS/ ENGINEERING MANAGEMENT
APRIL 17

Story on page 7

JOINT MEETING: TOUR OF AMES RESEARCH CENTER. Reservations limited to first 60.

APRIL 17, Tuesday, 7:30 PM, Ames Research Center, Moffett Field (meet at Cafeteria). Cocktails (no host) 6:00 PM; dinner 6:30 PM at Ames Cafeteria. Tour at 7:30 PM. For dinner (prime rib at $6.00 incl. tax & tip) and tour reservations, call Phil Steinberg at (415) 326-4350, x 5087, by April 12, noon.

ANTENNAS & PROPAGATION
APRIL 12

Story on page 7

ON THE LP'S OF LP ANTENNAS. Ray DuHamel, Consulting Engineer, Los Altos Hills.

APRIL 12, Thursday, 8:00 PM, Lockheed Research Lab Auditorium, Bldg. 202, 3251 Hanover St., Palo Alto. Cocktails: 5:30 PM; dinner 6:15 PM, Rick's Swiss Chalet, 4085 El Camino Way, Palo Alto. No reservations required.

AUDIO & ELECTROACOUSTICS
APRIL 12

Story on page 7

LINEAR PREDICTIVE METHODS OF SPEECH DIGITIZATION. Dr. Thomas Magill, Senior Research Engineer in the Telecommunications Dept., SRI, Menlo Park.

APRIL 12, Thursday, Conference Room B, Main Building, SRI, 333 Ravenswood Ave., Menlo Park. No dinner. Meeting at 8:00 PM.

CIRCUIT & SYSTEMS SOCIETY/MICROWAVE THEORY & TECHNIQUES
APRIL 28

ALL DAY SEMINAR ON MODERN MICROWAVE CIRCUIT DESIGN: THEORY AND APPLICATION.

APRIL 28, Saturday, 9:00 AM to 5:00 PM, SLAC Auditorium, 2575 Sand Hill Road, Menlo Park. Advance registration required. See insert for full details.

COMMUNICATIONS SOCIETY
APRIL 17

Story on page 4

PCM ON MICROWAVE RADIO. Dr. Frank Boxall, VICOM Corp. Mt. View.

APRIL 17, Tuesday, 8:00 PM, The Brave Bull of Los Altos, 4390 El Camino Real, Los Altos. Dinner: 6:30 PM. Reservations: Dick Sherman (415) 326-6200 x 4104 by April 13th.

COMPUTER SOCIETY
APRIL 24

Story on page 5

DESIGNING COMPUTERS FOR THE USER. R. D. Hunter, Mgr. of Systems Engineering, Burroughs Magnetic Storage Systems.

APRIL 24, Tuesday, 8:00 PM, Skilling Auditorium, Stanford University. Dinner: 6:15 PM, Rick's Swiss Chalet, 4085 El Camino Way, Palo Alto. Reservations: Nail Sullivan, (408) 257-6550 x 320 by noon, April 24th.

EAST BAY SUBSECTION
APRIL 25

Story on page 5

TOUR OF PG&E'S GEYSERS POWER PLANT.

APRIL 25, Wednesday, 8:30 AM. Leave at PG&E Bldg., 17th & Clay Sts., Oakland at 8:30 AM. Return approximately 4:00 PM. By bus (no charge). Bus space is limited, so reserve early. Reservations: Jerry Parker, PG&E Co., (415) 835-8500 x 327.

ELECTROMAGNETIC COMPATIBILITY
APRIL 16

Story on page 7

BROADBAND TESTING AT RF AND MICROWAVE FREQUENCIES USING IMPULSE GENERATORS. Dr. Gunther Sorger, The Singer Company, Instrumentation Operation.

APRIL 16, Monday, 8:00 PM, Rick's Swiss Chalet, 4085 El Camino Way, Palo Alto. Cocktails: 5:30 PM; dinner 6:30 PM. Reservations: Sue Davis (415) 493-3231 x 243 by April 13th.

ENGINEERING IN MEDICINE & BIOLOGY
APRIL 10

Story on page 2

NEW METHODS IN APPLYING MAGNETISM TO CANCER AND BLOOD FLOW PROBLEMS. Prof. J. R. Singer, U.C., Berkeley.

APRIL 10, Tuesday, 8:00 PM, U.C. Medical Center, San Francisco, Health Sciences West Tower, Room 300. Dinner: 6:00 PM, Red Chimney, 3 Stonestown, S.F. Reservations: Mrs. A. L. Swenson, (408) 391-4915 by April 6th.

INDUSTRY APPLICATION SOCIETY/ GOLDEN GATE SS
MAY 4

Story on page 2

JOINT MEETING: WINETASTING AND STEAK BARBECUE. Mail reservations with check payable to IEEE. $8.00 per person. Limited to 225 persons. Ladies welcome.

MAY 4, Friday, 6:30 PM, Paul Masson Mountain Winery, Saratoga. Mail check to Bryan Baarts, PG&E Co., 77 Beale St., Room 2523 San Francisco, Ca. 94106 or call him at (415) 781-4211 x 3371 for further information.

INFORMATION THEORY/ CONTROL SYSTEMS
APRIL 16

Story on page 5

JOINT MEETING: A TUTORIAL ON ITO CALCULUS IN DYNAMICAL SYSTEMS. Prof. John Ohlson, Naval Postgraduate School, Monterey.

APRIL 16, Monday, 8:30 PM, SRI Conference Room B, Building 1, 333 Ravenswood Ave., Menlo Park. Dinner: 6:15 PM, The Winery, 2391 El Camino Real, Palo Alto. Reservations: Mrs. Kay Everwine, (415) 321-2300 x 4539 by 4:00 PM, April 16th.

NUCLEAR & PLASMA SCIENCES SOCIETY
APRIL 20

Story on page 5

A PHYSICIST'S VIEW OF THE ARMS RACE. WHY WE SHOULD OPPOSE THE ABM. Prof. Owen Chamberlain. Lawrence Berkeley Labs, U.C., Berkeley.

APRIL 20, Friday, 8:00 PM, Rick's Swiss Chalet, 4085 El Camino Way, Palo Alto. Cocktails: 6:00 PM; dinner 7:00 PM. Reservations for dinner and meeting or meeting only call Lou Burch (415) 854-3300 x 2401.

POWER ENGINEERING SOCIETY/GOLDEN GATE SUBSECTION
APRIL 10

Story on page 7

JOINT MEETING: THE DEVELOPMENT AND THE IMPACT OF PERSONAL, PORTABLE AND POWERFUL COMPUTING. Dr. Thomas M. Whitney, Advanced Products Division, Hewlett-Packard Company.

APRIL 10, Tuesday, 7:30 PM, Engineers Club, 160 Sansome St., San Francisco. Cocktails: 5:30 PM; dinner 6:30 PM. Reservations: Engineers Club (415) 421-3184.

RELIABILITY
APRIL 18

Story on page 5

RADIATION EFFECTS VS. RELIABILITY. Hans Schneeman, Microcircuits Design Specialist, LMSC, Sunnyvale.

APRIL 18, Wednesday, 8:00 PM, Stanford Lecture Hall (PH 104), Stanford University. Dinner: 6:30 PM, Stanford View Restaurant, El Camino at Stanford Ave. Reservations: Phil Guillot (408) 742-9371 by April 17th.

SYSTEMS, MAN & CYBERNETICS
APRIL 10

Story on page 4

SPACE SHUTTLE PROGRAM. Eugene Roberts, Vice President, United Technology Center.

APRIL 10, Tuesday, 8:00 PM, Ness Auditorium, International Bldg., SRI, 333 Ravenswood Ave., Menlo Park. Dinner: 6:15 PM, SRI International Dining Room - $5.75. For reservations and information: Robert Heald (415) 326-6200 x 4257 by April 5th.

"PROFITING FROM YOUR INVENTION", a one day seminar sponsored by the California Inventors Council will include speakers from the U.S. Patent Office and industry on how much the invention is worth, selling to the large and small manufacturer and how to get venture capital as well as marketing pitfalls. Date: April 4, 1973. Place: Fiesta Building, San Mateo Fairgrounds, San Mateo, California. Reservations: California Inventors Council, Suite H, 77 Jack London Square, Oakland, California, 94607.

LOOK FOR WESTERN REGION SIX CONFERENCE INFORMATION ON PAGE FOUR.

SMC – SPACE SHUTTLE PROGRAM

The Space Shuttle Program is the largest and most technically complex development program in the U.S. today. The critical management and technical challenges in a program of this magnitude will be discussed at the April SMC meeting by Mr. Eugene Roberts, Vice President, United Technology Center. He will describe the Space Shuttle Program in general, and in particular, the requirements of the proposed Solid Rocket Booster subsystem for which UTC is a prime contender.

Mr. Roberts has been director of UTC's Titan III programs since early 1968, and recently was selected to direct the company's efforts to acquire NASA's contract for the solid rocket booster stage of the Shuttle. He came to UTC one year after its inception in 1958 and played a major role in the organization of the company as well as in the design of its facilities.

Mr. Roberts earned a BSChE degree from the City College of New York in 1941, and took advanced work in Engineering Administration at George Washington University. He is an Associate Fellow of The American Institute of Aeronautics and Astronautics, a member of the American Institute of Chemical Engineers, and has authored numerous papers and reports in the field of solid propellant development and processing.

The meeting was arranged by the Bay Area Chapter of the Human Factors Society, and joint participation was invited from the Sequoia Chapter of the Research Society of America (RESA) and the IEEE Systems, Man and Cybernetics Society. Please note that dinner will be held at the SRI International Dining Room, and that early reservations are requested. See calendar for details.

COM – DIGITAL TRANSMISSION VIA MICROWAVE RADIO

The Communications Society April meeting will feature a talk "Digital Transmission via Microwave Radio" by Dr. Frank Boxall. The widespread use of T-1 digital carrier systems has motivated an increasing interest in digital radio systems, regardless of its apparently extravagant use of the spectrum. Dr. Boxall will discuss alternatives of these systems and examine the technical and economical trade-offs.

Frank Boxall, originally a native of Canada, began his association with communications in World War II as a ship's radio officer in the Canadian Merchant Navy. This led to formal engineering training and a BS degree from the University of British Columbia in 1951. He obtained a PhD at Stanford in 1955, and became a U.S. citizen a year later. He is a member of Sigma Xi, holds U.S. patents, and has published several technical papers. He has taught engineering classes at a number of Universities. His professional experience includes VIDAR, which he founded in 1964, Continental Telephone Corp., and others. He now is an independent consultant.

1973 IEEE WESTERN REGION CONFERENCE – MINICOMPUTERS AND THEIR APPLICATIONS HONOLULU, HAWAII, MAY 2, 3, 4 SHERATON WAIKIKI HOTEL

IEEE has established a special Travel and Housing Control with Beltz Travel Service in San Francisco which includes:

- –Round trip jet air transportation from all West Coast Gateway cities to Honolulu and return, thrift class.
- –Four nights hotel accommodations at Sheraton, Waikiki, May 1-5, 1973, including Hawaii state tax.
- –Private transportation Honolulu airport to hotel.
- –Baggage handling, including tips, both arrival and departure.
- –IEEE Special Hawaii Service Center with Staff.
- –One IEEE breakfast and three luncheons.

Total fee for the above: $319.35 per person, twin, double occupancy; and $372.45 per person, single occupancy.

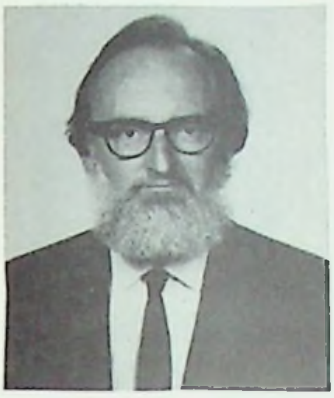
Prices based on those in effect March 1973, subject to change without notice, if rules or conditions change. Deposit money refundable up to three days before departure.

Conference Registration Fee – Members $25.00; nonmembers $30.00, including Proceedings.

It is important that reservations be made immediately to hold air travel and hotel space. Contact: IEEE Travel and Housing Control Center, Beltz, 369 Pine Street, San Francisco 94104. Checks payable to "IEEE Control Center". If you did not receive Registration and Reservation form, call Beltz at (415) 391-8490.

Post-Conference Neighbor Island Tours available at comparable rates.

NPSS – A PHYSICIST'S VIEW OF THE ARMS RACE



In the past few years, events have tended to push the question of military defense systems into the background. However, in the post-Vietnam era, this question may well be re-examined, and the implications of this examination should be especially interesting to engineers and physicists associated with nuclear science.

Professor Chamberlain's view is that, paradoxically, the best defense is obtained by a system geared primarily for offense. He will explain why defensive systems such as the Anti-Ballistic Missile system should not be built.

Professor Chamberlain is Professor of Physics at the University of California at Berkeley and leader of a physics research group at the Lawrence Berkeley Laboratory. In 1959, he shared the Nobel Prize for physics with Professor Emilio Segre for their discovery of the anti-proton.

RADIATION EFFECTS VS. RELIABILITY

An overview of typical designs and controls will be presented that will ensure the functioning of parts and packages exposed to man-made or space radiation effects. Related items (such as ionization effects, surface effects, latchup, annealing, circumvention, etc.) will be discussed along with necessary compensations and reliability bonuses.

Hans T. Schneeman, member of the IEEE Nuclear & Plasma Science Society and BEE graduate of Marquette University, has performed radiation effects studies on components and designs. He has been associated with Allis-Chalmers, Sandia, and presently LMSC.

EBSS – GEOTHERMAL POWER

PG&E's Geysers Power Plant will be a tour for the East Bay Subsection on April 23. This plant, in northeastern Sonoma County, is the only geothermal plant in the nation. The Geysers is located about 90 miles from San Francisco on the steep slopes near Cobb Mountain, an extinct volcano.

The first attempt at developing The Geysers power potential was made in 1922. Drillers successfully tapped the steam source. Materials available then could not stand corrosive and abrasive effects of impurities in natural steam. The project was abandoned.

The area was tapped again in 1956. The first 11 mw generating unit began operation in 1960. Now eight Geysers units can generate 290 mw. Four additional units will boost plant capacity to over 600 mw by 1975.

The tour will leave the PG&E building at 17th and Clay Streets, Oakland at 8:30 a.m. by bus (no charge) and return at approximately 4 p.m. Public parking lots are available on 17th Street, or take BARTD to the 19th St. Station. As bus space is limited please make reservations by calling Jerry Parker, PG&E, 835-8500, ext. 327.

C – DESIGNING COMPUTERS FOR THE USER

The computer industry has been notoriously insensitive to the needs of their customers. Installations are burdened with non-productive overhead, unbalanced equipment configurations, hordes of operators and maintenance personnel, and awkward and non-standard languages requiring armies of software experts to produce any useful results. Technologies are available today to eliminate many of these problems.

Computer designers must first reorient their approach to develop a better understanding of user needs, however. Examples of opportunities for user/application oriented systems abound in areas involving data collection, data base and communication intensive systems.

Mr. Hunter has 18 years experience in the computer field. Beginning in the aerospace industry at Hughes Aircraft, he subsequently held engineering management positions at General Electric and Honeywell and later was founder and president of a company manufacturing computer storage and communication equipment. He is currently Manager of Systems Engineering for Burroughs Magnetic Storage Systems.

IT – CS – JOINT MEETING, ITO CALCULUS IN DYNAMICAL SYSTEMS

An intuitive, non-rigorous explanation of the necessity for Ito calculus in analyzing communication and control systems will be given. A simplified approach will demonstrate its pitfalls and advantages as contrasted to ordinary calculus. Application will be made to phase-locked loops. A new result for excitation of systems by Poisson impulses will be shown to give very powerful intuitive understanding of the behavior of dynamical systems.

Dr. John E. Ohlson has taught at the University of Southern California and is now an Associate Professor of Electrical Engineering at the Naval Postgraduate School, Monterey, and a Consultant to the Jet Propulsion Lab. He is active in the statistical communication theory area and has done considerable practical work in radar, deep-space communications and communication satellites.

1973-1974 SECTION NOMINEES

DALTON W. MARTIN
FOR CHAIRMAN

Present Vice Chairman, received a BSEE from Stanford University in 1954 and an MSEE from Stanford in 1956. He was associated with Stanford Research Institute from 1953 to 1959 in the Radio Systems Laboratory, Low-Frequency Navigation Systems, and Direction Finding Systems. He was co-founder of VIDAR Corporation in 1960 and served as Vice President-Engineering from 1960 to 1968. He is presently Vice President of VIDAR Corporation. He has been an IEEE member since 1955 and served as Technical Program Chairman for WESCON/69.

ED JACKSON
FOR VICE CHAIRMAN

Present Secretary, served in US Navy as an electronics technician in WW II and in the Korean War. Between wars, he attended UC, Berkeley. He joined the Bell System in 1952 and is currently employed as a staff engineer heading a group responsible for coordinating all major projects in Central Counties area of Pacific Telephone Company. He was active in East Bay Subsection for four years. After serving as chairman of the subsection in 1969, he advanced to Senior Member, IEEE and became active in the Section, serving two terms as Group Chapter Coordinator.

RONALD J. WHITTIER
FOR SECRETARY

Present Treasurer. An officer of the SF Chapter of the Electron Devices Group during 1969-1971. Received BS degree from UC Berkeley in 1960 and the PhD degree from Stanford University in 1965, after which he joined Fairchild Camera & Instruments Corporation's Research and Development Laboratories, where he was involved in investigations of high current effects and noise in semi-conductor devices. He became Manager of the Physics Department in 1970. He joined Intel Corporation, where he currently directs new technology development activities.

RICHARD W. ANDERSON
FOR TREASURER

A graduate of Utah State University with a MS from Stanford University. Joined Hewlett-Packard in 1959 as a design engineer. In 1965 he was made an engineering section manager of HP's Microwave Division; in 1968 he was promoted to Engineering Manager for the Santa Clara Division; and in 1971 was named General Manager for the Automatic Measurement Division. He is a member of IEEE and has served as San Francisco Chapter Chairman of the Microwave Theory and Techniques Group and is at present a member of the administrative committee of the Instrumentation and Measurement Group.

JACK SHULMAN
FOR TREASURER

BSEE degree from Ohio State University, MSEE from University of California. Registered Professional Engineer, California. Member of AIEE-IEEE since 1940. Presently Vice Chairman of San Francisco Chapter, PES. Junior Past Chairman of Golden Gate Subsection. Past Chairman of Santa Clara Valley Subsection. Served on National Switchgear Committee. Member of West Coast Transformer Subcommittee. Employed by Westinghouse Electric Corporation as Fellow District Engineer, Power Systems Field Sales.

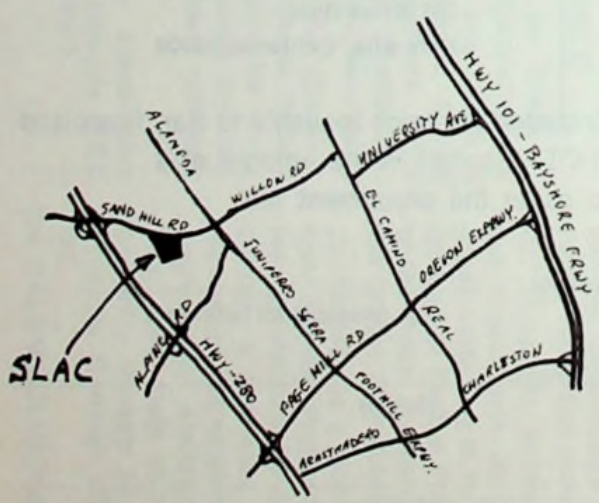
L. G. FITZSIMMONS
SECTION WESCON DIRECTOR

Present Junior Past Chairman, now Chief Engineer in San Jose for Central Counties Pacific Telephone. Graduated from University of California in 1940 with BSEE. Completed one-year Applied Communications course at Naval Postgraduate School, Annapolis. Eleven years with Bell Telephone Laboratories. Since 1951 with Pacific Telephone in various engineering, maintenance and staff assignments. Member of Tau Beta Pi, Eta Kappa Nu and American Society for Engineering Education. Fellow of the IEEE. Member of the Communication Technology group and on their National Awards Committee.

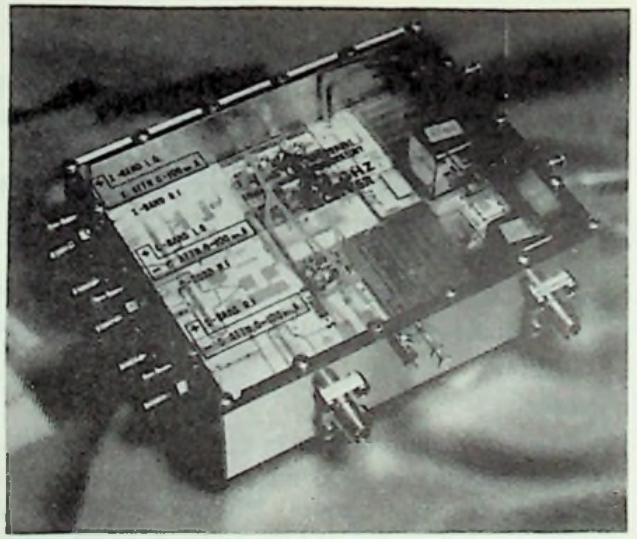
OTHER COURSES:

Medical Electronics

(May 1973)



THE **INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS, INC.**



MODERN MICROWAVE CIRCUIT DESIGN; THEORY AND PRACTICE

A ONE-DAY SHORT COURSE - APRIL 28, 1973 - AT SLAC - PRESENTED JOINTLY BY THE IEEE CIRCUIT THEORY GROUP AND MICROWAVE THEORY AND TECHNIQUES GROUP, SAN FRANCISCO CHAPTERS AND IEEE EDUCATIONAL ACTIVITIES BOARD

WHEN

April 28, 1973
Saturday
9:00 a.m. - 5:00 p.m.

WHERE (See Map)
Main Auditorium
Stanford Linear Accelerator Center
2575 Sand Hill Road
Palo Alto, California

PURPOSE

To bring the practicing engineer up to date with recently developed techniques directly applicable to microwave circuit design.

COURSE DESCRIPTION

Advantages and limitations of thin film circuits. Component evaluation. Airline, stripline and microstrip circuits. Filter design. Microwave active filters. Computerized optimization techniques. Mapping techniques. Noise figure device models. Matching techniques for optimium noise. High power transistor models. Lossy and lossless matching networks. FET circuits.

PREREQUISITE (Recommended)
Bachelor's degree in engineering, or equivalent.

MODERN MICROWAVE CIRCUIT DESIGN:

THEORY AND PRACTICE

April 28, 1973

Main Auditorium
Stanford Linear Accelerator Center
2575 Sand Hill Rd.
Palo Alto, California

Morning **COURSE SCHEDULE**

1. Thin Film Circuits - - What is State-Of-The-Art . . . . . **From**
2. Semi Lumped Elements in Low-Pass Filters . . . . . **Underkofler**

Coffee

3. Optimization of Microwave Circuits - **Besser**
4. Computerized Graphical Techniques - - The Generalized Smith - Chart . . . . **Kuhn**

Lunch

(At Slac's Cafeteria) cost included in Registration Fee

Afternoon

5. Low-Noise Amplifier Design Concepts . . . . . **Eisenberg**
6. Microwave High-Power Amplifier Design . . . . . **Meyer**
7. Resistive/Reactive Matching Technique for Detector Diodes . . . . . **Garcia**

Coffee

8. Double Detection Filter Banks - - Designing around Circuit Fundamentals . . . . **Adams**
9. Application of GaAs **Mesfet's** in Microwave Amplifiers . . . . . **Tillman**

LECTURERS

David K. Adams, Wavecom, Sunnyvale, Calif.
Les Besser, Farinon Electric, San Carlos, Calif.
John Eisenberg, Watkins Johnson, Palo Alto, Calif.
William H. From, Raytheon, Bedford, Mass.
Jim Garcia, Applied Technology, Sunnyvale, Calif.
Nick Kuhn, Hewlett Packard, Palo Alto, Calif.
Fred Meyer, TRW Lawndale, Calif.
Bob Tillman, Hewlett Packard, Palo Alto, Calif.
Lee Underkofler, Applied Technology, Sunnyvale, Calif.

FEE

The fee for this course is $15.00 for IEEE regular members, $10.00 for student members and $25.00 for non-members. The fee also includes the lunch at SLAC and the material to be handed out. The registration fee is increased by $5.00 after the date of April 20, 1973.

REGISTRATION

The enrollment for this course is limited. Therefore, persons interested in taking this course are urged to enroll early by completing and mailing the registration form below. Companies may enroll for any given number of individuals, supplying names later. Advance registration is required. For additional applications, use separate sheet giving information requested on enrollment form.

INFORMATION

For additional information concerning the program, write to or call the course organizers:

Doug Gray
Hewlett Packard
Microwave Div.
1501 Page Mill Rd.
Palo Alto, Calif. 94304
Phone 415- 493-1501

Don Messner
Applied Technology
645 Almanor Ave.
Sunnyvale, Calif. 94086
Phone 732-2710/#2500

MICROWAVE COURSE REGISTRATION FORM

(Should be received before April 20, 1973)
Late registration: Add $5.00 to fee.

Mail to: **Zvonko Fazarinc**
c/o IEEE San Francisco Section Office
Suite 2210
701 Welch Road
Palo Alto, California 94304

Enclosed is check (payable to San Francisco G-CT Chapter) in the amount of $..... to cover the enrollment fee.

Name .....
(please print full name)

Address .....
(Street)

.....
(City and State) (Zip)

Company Name .....

IEEE Affiliation (Check One)

☐ Member
☐ Student Member
☐ Non-Member

- -

IEEE Membership No:- - - - - - - - - - - - - - - - - -

☐ Late Registration (Check if applicable)

TO ALL VOTING MEMBERS OF THE SAN FRANCISCO SECTION:

Please complete the attached ballot for your 1973-74 Section Officers, and mail before May 15, 1973. All IEEE members other than Student Grade are entitled to vote, and are urged to do so.

TO ENCOURAGE YOUR VOTE, THE RETURN BALLOT IS PREPAID.

AP – THE LP'S OF LP ANTENNAS

During the last eighteen years the speaker has spent a major part of his efforts on wide band antennas and microwave components. His talk will be centered on his experiences with logperiodic antennas (LPA) during this time. This will include discussions of the ludicrous parentage of the first successful LPA, how lucky perseverance led to practical LPA, the limitless permutations of the concept, some of the leading pitfalls encountered along the road, the lethargic progress over the years, the reactions of lifelong pessimists, the limbo patent situation, some lasting problems and finally some lackluster predictions.

Dr. Duhamel is a consulting engineer, a Fellow of IEEE, and received the Ph.D degree from the University of Illinois in 1951. He conceived the logperiodic antenna design principles and was responsible for applying these new techniques to HF antennas, dish feeds and ELINT antennas. His research activities include LP transmission line circuits, tapered line magic-T, broad band multiple mode antenna feed networks, LP and TEM dual polarized monopulse antennas.

LASER THEORY IEEE PRESS BOOK AVAILABLE

Laser Theory, edited by Frank S. Barnes, University of Colorado, now is available. This 480 page book is priced at $7.50 paperbound, $11.20 clothbound, to IEEE members. Price to nonmembers $14.95 clothbound, through John Wiley & Sons, New York.

This volume sponsored by Electron Devices Group and Microwave Theory Group is designed to meet the needs of both the serious student and the engineer or scientist doing research work on lasers.

Members please give membership number when ordering through IEEE Order Department, New York.

A & E – LINEAR PREDICTIVE METHODS OF SPEECH DIGITIZATION

Dr. Thomas Magill, Senior Research Engineer in the Telecommunications Department of the Stanford Research Institute, is engaged in research in Speech Digitization and will speak on "Linear Predictive Methods of Speech Digitization".

This tutorial talk will be devoted to the linear predictive method of speech digitization. The requirement for a speech digitizer is to produce very high quality synthesized speech with transmission rates as low as 2400 baud. The speech process is modeled as an autoregressive source. Linear equations in the autocorrelation coefficients are solved for the Linear predictive coefficients. The latter are digitized and transmitted to the receiver where they are utilized in the synthesizer. Atal's, Markel's, and Itakura's approaches to the above series of operations are developed and compared. The outstanding remaining problem of excitation function characterization is described and methods for improvement of present techniques are suggested.

A question and answer period will follow the talk. Guests and interested persons are welcome to attend.

PES – GGSS – THE DEVELOPMENT AND THE IMPACT OF PERSONAL, PORTABLE AND POWERFUL COMPUTING

The age of personal computing has arrived! Powerful, portable calculators are now available at prices which justify individual ownership.

Dr. Thomas M. Whitney will discuss the development and impact of personal computing at the April 10 joint meeting of the San Francisco Chapter of the Power Engineering Society and the Golden Gate Subsection of IEEE.

Dr. Whitney is a pioneer in this new field and was Project Manager for the Hewlett-Packard HP-35 Pocket Calculator, a new hand size scientific instrument. He holds BS, MS and PhD degrees in electrical engineering from Iowa State University and is presently Manager for the Advanced Products Division of Hewlett-Packard.

EMC MEETING RF AND MICROWAVE TESTING USING IMPULSE GENERATORS

Dr. Gunther Sorger, Chief Marketing Scientist for Singer's Instrumentation Operation, will speak on broadband testing of gain, return loss, insertion loss, etc. with emphasis on microwave frequencies using impulse generators at the EMC meeting Monday night, April 16.

An error analysis and comparison to conventional swept frequency measurements will be presented along with a discussion of the theory of impulse generation.

Dr. Sorger is a senior member of IEEE, and ISA and was its National Chairman for Microwave Standards between 1960 and 1970. He is presently Chairman of the Technical Committee on Instrumentation and Measurements of High Frequency Instrumentation and Measurements of IEEE with responsibility for standards and techniques.

AES/EM JOINT MEETING TOUR OF AMES RESEARCH CENTER

Come see where your tax dollars go. Join us for cocktails, dinner and a tour of the facilities at the AMES Research Center, Moffett Field. Reservations are required since the tour will be limited to a maximum of sixty people. Mr. Joseph Camp, Chief of the Procurement Operations Branch at Ames Research Center will be in charge of the tour. Ames Research Center is under the direction of Dr. Hans Mark. An interesting and educational experience is promised in viewing these world renowned research facilities.

See CALENDAR for Program Arrangements

IEEE FORMS COMMITTEE ON SOCIAL IMPLICATIONS OF TECHNOLOGY

Engineers are becoming increasingly concerned with the effects of technology on our society. The uses of technology, the priorities assigned in developing new technology, and the effects on our physical and social environment are of vital importance to our future. The present generation is the first in history to face the prospect of a planet limited in its ability to support an exponentially growing and polluting human race. The public has become increasingly intolerant of what it sees as the nuisances or hazards resulting from technology.

In response to these concerns the Executive Committee of the Institute of Electrical and Electronics Engineers has formed an Ad Hoc Committee on Social Implications of Technology (C-SIT). Its areas of concern include: professionalism and social responsibility in engineering; understanding the interaction between technology and society; predicting and evaluating the impact of technology on society; and fostering study, discussion and appropriate action in these areas. C-SIT is committed to providing a forum in which all engineers, as well as experts in non-technical fields such as law, economics and the social sciences, may express their thoughts in this area. In the coming months such diverse issues as electronic warfare, environmental pollution, communication and transportation, electronic surveillance and data banks, and bioelectronics will be discussed.

Interested engineers are invited to keep in touch with the activities of the Committee via its bi-monthly newsletter. The first issue was published in December 1972. Future issues will include notices of meetings, lectures, and discussion groups, publication of papers and articles, bibliographical reviews, and personal commentary. Sample copies may be obtained from IEEE, C-SIT Newsletter, 345 East 47th St., New York, N.Y. 10017.

C – THREE DAY MINICOMPUTER WORKSHOP

The University of Santa Clara, in cooperation with the Technology Learning Corporation and the IEEE Computer Society present a Minicomputer Workshop April 18, 19, 20, 1973, at Benson Center, University of Santa Clara. Purpose of the Workshop is to provide engineers, managers and data processing personnel with an understanding of minicomputer systems and their uses.

Lecturers are:
–Dr. F. W. Clegg, Assistant Professor of Elec. Eng. and Computer Science, University of Santa Clara.
–Duncan B. Ross, Digital Equipment Corp., Palo Alto.
–Kenneth Rothmuller, Project Manager, Hewlett-Packard.

PROGRAM:

Wednesday, April 18.

A.M. Minicomputer Fundamentals
Communication with Mini Programming Exercises

P.M. Minicomputer Organization
Minicomputer System Softwear

Thursday, April 19.

A.M. Problem Solving with Minicomputers
Design Problem Case Histories

P.M. Survey of Minicomputer Hardware
Minicomputer Peripherals
Hardware Session

Friday, April 20.

A.M. Selecting a Minicomputer
The Future

P.M. Summary and Discussion
Software exercises and Hardware review

Fee: $225 for IEEE and ACM members. $300 for non-members. Fee includes three luncheons, refreshments and course notes.

Registration deadline, April 9, 1973. For information contact Division of Continuing Education, University of Santa Clara, Santa Clara, Ca. 95053. Telephone: (408) 984-4518.

IEEE Computer Society
April 18, 19, 20, 1973
Minicomputer Workshop

(Must be received by April 9, 1973)

Enclosed is check (Payable to University of Santa Clara) in amount of $_____

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(City, State, Zip)

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