EDITOR'S PROFILE of this issue

from a historical perspective …

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

March, 1972:

Cover: Nine of our Section's members have been elevated to IEEE Fellow. More on pages 4-5.

Pages 4-5: Profiles of our new IEEE Fellows:

Jim Gibbons, professor of electronics at Stanford. He had developed Stanford's system of Tutored Videotape Instruction (TVI) which developed into the Stanford Instructional Television Network (SITN) that I later used for our IEEE Short Courses in the evenings.

Any Grove was a founder of Intel in 1968, where he is VP. He had been recognized with the Region 6 Achievement Award.

Grid
MARCH 1972

FELLOWS ELECTED - 1972

RONALD L. BELL
For contributions to infrared photoemission.

ELWYN R. BERLEKAMP
For contributions to information theory, particularly in the field of algebraic coding.

FREDERICK W. CRAWFORD
For contribution to the understanding of wave and instability phenomena in plasmas.

JULIAN FORSTER
For contributions to instrumentation and control systems for nuclear power plants.

JAMES F. GIBBONS
For contributions to solid-state electronics and engineering education.

ANDREW S. GROVE
For contributions to metal-oxide-silicon devices and engineering education.

STEPHEN E. HARRIS
For contributions in lasers, nonlinear optical parametric devices, and acoustooptics.

ROBERT SYMONS
For development of superpower klystrons and hybrid amplifiers.

RICHARD M. WHITE
For contributions to the discovery and applications of surface elastic waves.

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https://ethw.org/IEEE_San_Francisco_Bay_Area_Council_History

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

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ELECTROMATNETIC REMOTE SENSING

Snowpack water content by electromagnetic remote sensing is described, based on plane-layered models consisting of air, snow, ice, water, and earth. The reflection coefficient has been computed for a normally-incident plane EM wave at frequencies between 10^6 to 10^{10} Hz. The approach is a direct "spin-off" from some of the basic research in the NASA space exploration program. Theoretical and field-test results will be given. Possible airborne applications of the system will be outlined.

Dr. William I. Linlor is Chief, Electrodynamics Branch in the Space Sciences Division at the Ames Research Center. He received his PhD in nuclear physics at the University of California, Berkeley. Dr. Linlor has been active in the fields of high-energy physics, controlled thermonuclear fusion and fusion research with laser-produced plasmas. More recently, he has been engaged in space projects such as the lunar-based ALSEP magnetometer, "plasma probe" for the Pioneer series, and magnetometers for Explorers 33 and 35.

A SYSTEMS APPROACH TO DRUG THERAPY

There is an urgent medical need to improve the administration of drugs. This lecture will describe these requirements and present a new approach to developing therapeutic systems. The structuring of an interdisciplinary team for such development will be discussed. Dr. Richard D. Buckles will speak at this March 13 meeting of the SMC Group.

Dr. Buckles received his Ph.D. from MIT in 1966. He was Asst. Program Manager for the Biological Division Program of the Naval Research Institute, and presently is Director of Therapeutic Systems Div. at Pharametrics, Inc. in Palo Alto. He is a member of the AIChE, the Undersea Medical Society, and the American Society of Artificial Internal Organs. Dr. Buckles has been the recipient of many honors, and has authored 13 technical papers.

MULTI-CHANNEL DISTRIBUTION OF VIDEO SIGNALS IN THE CATV INDUSTRY

The MTT Chapter will hear Mr. A. H. Sonnenschein of Theta-Com describe the history and business trends in the burgeoning CATV industry. The industry's technical requirements which are necessary to deliver clear and interference-free pictures to its subscribers with good resolution and good color fidelity will be discussed. Multi-channel microwave transmission local distribution service offers a means of overcoming some of the technical and economic limitations of long cascades of trunkline amplifiers.

Mr. Sonnenschein is currently Assistant to the President at Theta-Com, a subsidiary of the Hughes Aircraft Company producing equipment for the CATV industry. He received his BEE degree cum laude from the City College of New York, and his MEE degree from Brooklyn Polytechnic Institute.

His professional experience beginning in 1948 includes PRD Electronics, Polarad Electronics, and Vice President of Federal Scientific Corp. As chief scientist for Hughes Aircraft Co., he was engaged in economic and technical planning of various diversification projects, which has resulted in his present assignment in the implementation of one of these diversification programs.

FUTURE SHOCK – A PSYCHOLOGIST'S VIEW OF THE STUDENT AND ENGINEER

Traditionally, behavioral scientists have been called upon to assess the interest patterns of engineers or engineering students, and to generate profiles of personal characteristics to describe the typical engineer. It may be that the degree of attention given in the past to assessment of personal factors, considered independently of social and economic change, is no longer appropriate.

Dr. Bosley will review recent data indicating significant shifts in the interests and motives of engineers, also some of the emerging frameworks for thinking about how individuals and organizations can or must change in the face of broader social trends.

John J. Bosley is with the Urban and Social Systems Division of the Stanford Research Institute; a psychologist with an interest in technology, education, and society. Dr. Bosley was educated at West Virginia and Johns Hopkins Universities before joining the SRI staff in 1962. Since then, he has participated in research projects at SRI covering a variety of areas.

MEETING CALENDAR

AEROSPACE & ELECTRONIC SYSTEMS
MAR. 16

Story on page 6

TOUR OF PHILCO-FORD FACILITIES. Warren Palmer, USASCA Program Manager. Philco-Ford Corp., Palo Alto.

MAR. 16, Thursday, 7:30 PM, Philco-Ford WDL, 3939 Fabian Way, Palo Alto. No dinner. Reservations: Pat Hoppe, (415) 326-4350 x 6143 by Mar. 13th.

ANTENNAS & PROPAGATION
MAR. 9

Story on page 2

ELECTROMAGNETIC REMOTE SENSING. Dr. William I. Linlor, Ames Research Center, Mt. View.

MAR. 9, Thursday, 9:00 PM, Lockheed Research Lab Auditorium, Bldg. 202, 3251 Hanover St., Palo Alto. Cocktails: 5:30 PM, dinner: 6:15 PM, Rick Swiss Chalet, 4085 El Camino Way, Palo Alto. No reservations.

CIRCUIT THEORY
MAR. 11

Story on page 6

ONE DAY COURSE ON LINEAR INTEGRATED CIRCUITS. Dr. Alan Grebene, EXAR Integrated Systems, Inc., Organizer. Lecturers: R. Dobkin of National Semiconductor and Dr. G. H. Wilson of Precision Monolithics, Inc., and Dr. Grebene.

MAR. 11, Saturday, 9 AM to 5 PM, SLAC Auditorium, 2575 Sand Hill Road, Menlo Park. See story for registration information. Call Alan Grebene at (408) 732-7970 for further information.

COMMUNICATION SOCIETY VEHICULAR TECHNOLOGY
MAR. 20

Story on page 8

JOINT MEETING. CALIFORNIA LAW ENFORCEMENT TELECOMMUNICATION SYSTEM. Curt Palmer, Special Representative, Pacific Telephone.

MAR. 20, Monday, 8:00 PM, Rodeway Inn, 380 So. Airport Blvd., South San Francisco. Dinner: 7:00 PM. Reservations: Ben Wright (415) 588-5315; Ed Carr (415) 399-5550 by Mar. 17th.

COMPUTER SOCIETY
MAR. 25

Story on page 8

ONE DAY COURSE ON DIGITAL SYSTEMS TECHNOLOGY. Prof. Wm. Dunn, Univ. of Santa Clara, Program Chm. Lecturers: Floyd Kvamme, National Semiconductor; Harold Dell, Precision Instruments; and Professor Wm. Dunn. Others to be announced.

MAR. 25, Saturday, 8:30 AM to 4:00 PM, Daly Science Hall, Room 207, University of Santa Clara. See story for registration information. For further information, write or call IEEE Short Courses, Div. of Continuing Education, Univ. of Santa Clara, Santa Clara, Calif. 95053. Phone (408) 984-4518.

COMPUTER SOCIETY
MAR. 28

Story on page 7

THE ENGINEERING OF NETWORKS OF LARGE COMPUTERS: A CASE STUDY. Kent Pryor, Lawrence Livermore Laboratory.

MAR. 28, Tuesday, 8:00 PM, Skilling Auditorium, Stanford. Dinner: Rick's Swiss Chalet, 4085 El Camino Way, Palo Alto. Reservations: Pat Fleming, 321-3300 x 258 by Mar. 28th.

ELECTRON DEVICES
MAR. 14

Story on page 7

HOLOGRAPHY AND ITS APPLICATIONS. Joseph W. Goodman, Associate Professor, EE Dept., Stanford University.

MAR. 14, Tuesday, 8:00 PM, Rick's Swiss Chalet, 4085 El Camino Way, Palo Alto. Cocktails: 6:00 PM, dinner: 7:00 PM. $4.55. Reservations: Section Office (415) 327-6822.

ENGINEERING MANAGEMENT
MAR. 15

Story on page 2

FUTURE SHOCK – A PSYCHOLOGIST'S VIEW OF THE STUDENT, ENGINEER AND MANAGER. Dr. John J. Bosley, Stanford Research Institute.

MAR. 15, Wednesday, 8:00 PM, Rick's Swiss Chalet, 4085 El Camino Way, Palo Alto. Cocktails: 6:00 PM. Dinner: 6:30 PM. Reservations: Judy Webb, (415) 321-2300 x 3619 by Mar. 14th.

INFORMATION THEORY
MAR. 16

Story on page 8

ANALYSIS OF EEG. Prof. Gene F. Franklin, Stanford University and Devin H. Utter, Lockheed M. & S. Co., Sunnyvale.

MAR. 16, Thursday, 8:30 PM, SRI Bldg. 1, 333 Ravenwood Ave., Menlo Park. Dinner: 6:00 PM, The Winery, 2391 El Camino Real, Palo Alto. Reservations: Paul Shaft, (408) 734-2244 x 342 by Mar. 15th.

MAGNETICS
MAR. 23

Story on page 8

TRILLION BIT LASER MEMORY SYSTEM. Herb Tate, Precision Instrument Co.

MAR. 23, Thursday, 8:00 PM, PH 104, Physics Lecture Hall, Stanford University. No dinner.

MICROWAVE THEORY & TECHNIQUES
MAR. 16

Story on page 2

MICROWAVES FOR MULTI-CHANNEL SIGNAL DISTRIBUTION IN CATV. A. H. Sonnenschein, Assistant to President, Theta-Com, Los Angeles.

MAR. 16, Thursday, 8:00 PM, Hewlett-Packard Auditorium, 5301 Stevens Creek Blvd., Santa Clara. Dinner: 5:45 PM, Custom House, 26000 Stevens Creek Blvd., Cupertino. Reservations: Louise Medaros, (415) 321-5135 x 500.

PARTS, HYBRIDS & PACKAGING
MAR. 14

Story on page 6

THE ELECTRON MICROPROBE/SCANNING ELECTRON MICROSCOPE. Dr. Ken Williams, Associate Professor of Geology, Stanford, assisted by Dr. Chas. M. Taylor, Research Associate.

MAR. 14, 7:30 PM, Earth Sciences Bldg., Stanford University. No dinner. Reservations are limited to 40 – call Bill Littell (415) 493-1501 x 3577 by Mar. 10th.

POWER ENGINEERING SOCIETY
MAR. 14

INVESTIGATION OF THE DETERIORATION OF POLYETHYLENE INSULATED CABLES. W. Vahlstron, PG&E.

MAR. 14, Tuesday, 5:30 to 7:00 PM, PG&E office, 77 Beale St., Room 1760, San Francisco. No dinner.

POWER ENGINEERING SOCIETY
MAR. 29

GENERATOR EXCITATION SYSTEMS AND STABILITY. J. L. Luini, PG&E.

MAR. 29, Wednesday, 5:30 to 7:00 PM, PG&E office, 77 Beale St., Room 1760, San Francisco. No dinner.

RELIABILITY
MAR. 8

Story on page 7

¿ACCEPTABLE HI-REL MINIATURE PARTS FOR HYBRIDS? William Schwartz, Senior Engineering Specialist, Philco-Ford WDL.

MAR. 8, Wednesday, 8:00 PM, Stanford University Physics Lecture Hall, PH 104. Dinner: 6:30 PM, Stanford View Restaurant, El Camino & Stanford Ave., Palo Alto. Reservations: Dick Cornwell (415) 966-3877 by Mar. 7th.

SYSTEMS, MAN & CYBERNETICS
MAR. 13

Story on page 2

A SYSTEMS APPROACH TO DRUG THERAPY. Dr. Richard G. Buckle, Director of Therapeutic Systems, Pharmetrics, Inc., Palo Alto.

MAR. 13, Monday, 8:00 PM, SRI Bldg. 44 – Laurel St. entrance, Menlo Park. Dinner: 6:15 PM, Red Cottage, 1706 El Camino, Menlo Park. Reservations: Section Office (415) 327-6822.

SANTA CLARA VALLEY SUBSECTION
MAR. 8

Story on page 7

PANEL DISCUSSION: MOTOR VEHICLE EXHAUST EMISSION CONTROL. Richard Anderson, Hewlett-Packard Co., Moderator.

MAR. 8, Wednesday, 7:00 PM, Hewlett-Packard Auditorium, 5301 Stevens Creek Blvd., Santa Clara. No dinner.

FELLOWS ELECTED - Biographies

RONALD L. BELL

Ronald L. Bell received the Ph.D. degree in Electrical Engineering from the University of Durham, England, in 1949. From 1948 to 1950 he worked on advanced tube development at GEC Laboratories, Wembley. From 1950 to 1957 he worked at SERL, Baldock, England, on gas discharge problems, microwave tubes, and neutron generation. He joined Varian Associates Tube Division in Palo Alto in 1957 to lead a group on crossed–field devices, and transferred to the Central Research Laboratories in 1960 to work on solid state problems. He spent the academic year 1964–65 at the Clarendon Laboratory, Oxford, on the Varian Advanced Study Program, working on crystal field spectra and cooperative effects in magnetic insulators, and in 1966–67 held a part time research appointment at Stanford Electronics Laboratories, Stanford University, studying defect thermochemistry of semiconductors. From 1967 to 1969 he was manager of a photoelectronics research group in the Varian Central Research Laboratories, and since 1969 has supervised semiconductor research and development in the same laboratory. Dr, Bell is a member of the American Physical Society, and a Senior Member of the IEEE.

ELWYN R. BERLEKAMP

Elwyn R. Berlekamp was born in Dover, Ohio, on September 6, 1940. He received his B.S., M.S., and Ph.D. degrees in electrical engineering from MIT in 1962, 1962 and 1964. From September 1964 to February 1967 he was an assistant professor of Electrical engineering at the University of California, Berkeley. From 1967 to 1971 he was a member of the Mathematics Research Center at Bell Laboratories, Murray Hill, New Jersey. Since 1971 he has been Professor of Mathematics and Electrical Engineering–Computer Sciences at the University of California, Berkeley. His book, "Algebraic Coding Theory" received the PGIT best research paper award for information theory publications which appeared in 1967 and 1968.

Professor Berlekamp is a member of the editorial boards of Information & Control, the American Mathematical Monthly, and Utilities Mathematicae (a new Canadian journal of applied mathematics, computer science and statistics). He is a senior member of the Institute of Electrical and Electronics Engineers and vice chairman of the Administrative Committee of their Professional Group on information Theory. He is also a member of the MIT Corporation Visiting Committee for the Electrical Engineering Department. He received the 1971 "Outstanding Young Electrical Engineer" award from Eta Kappa Nu.

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Dr. Crawford is a Professor in the Department of Electrical Engineering. He was born in Birmingham, England, on July 28, 1931. He obtained a London University B.Sc. (Eng.) degree with First Class Honours in Electrical Engineering in 1952, and a B.Sc. (Math.) degree in 1954. From Liverpool University he obtained a Ph.D. in 1955, for work on decaying arc discharges, and a Diploma in Education in 1956. Dr. Crawford then worked in the research department of the National Coal Board during 1956–57, and for two years as a Senior Lecturer in Electrical Engineering at the College of Advanced Technology, Birmingham (now the University of Aston) before coming to Stanford in December 1959. He received the London University M. Sc. (Math.) degree, in 1958, in thermodynamics and hydrodynamics. During 1961–62, he spent a year as a visiting scientist in the Plasma Physics Group of the French AEC at Saclay, France, and as consultant to CFTH.

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Dr. Crawford is a Fellow of the American Physical Society, a Fellow of the American Association for the Advancement of Science, a Senior Member of the IEEE, and a Member of Sigma Xi. He is also a member of Commissions III and IV or URSI. In the U.K. he is a Fellow of the Institute of Physics and of the IEE.

JAY FORSTER

Jay Forster has been named a Fellow of the Institute of Electrical and Electronics Engineers by the Board of Directors. This honorary IEEE grade is the first to carry the citation ".. for contributions to instrumentation and control systems for nuclear power plants."

Forster, who is manager of requisition engineering in the Nuclear Power Generation Control Department, Nuclear Energy Division, General Electric Company, was named a Fellow based on his contributions to both the advancement of nuclear power plant standards and the design of reactor control systems.

Among other IEEE positions, Forster is chairman of the organization's standards committee for 1972. He is also vice–chairman of the American Standards Institute for Reactor Instrumentation Control (N 42).

He is a member of the International Electrotechnical Commission and has co–authored its standard on "Boiling Water Teactor Instrumentation and Control." At the invitation of the U.S. Atomic Energy Commission, he also wrote the chapter covering the boiling water reactor in the AEC's "Handbook on Reactor Instrumentation and Control." Forster has been associated with General Electric's nuclear activity since joining the company 15 years ago.

JAMES F. GIBBONS

James F. Gibbons was born in Leavenworth, Kansas, on September 19, 1931. He received the B.S.E.E. degree from Northwestern University, Evanston, Illinois, in 1953, the Ph.D. degree from Stanford University, Stanford, California, in 1956 (NSF Fellowship), and did postdoctoral research (Fullbright Fellow) at Cambridge University, Cambridge, England, in 1956–57.

He joined the Stanford Faculty in 1957, where he is now Professor of Electronics. In 1963–64 he was a visiting Professor (NSF Senior Postdoctoral Fellow) at the Technical University of Denmark and a Fullbright Guest Lecturer at several European universities. During the Academic year 1970–71, he was a visiting Professor in the Nuclear Physics Department at Oxford University, Oxford, England, and a Visiting Professor of Electrical Eng-

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ineering at the University of Tokyo, for the summer quarter of the 1971 academic year. He has regularly served as a consultant to the elctronics industry and is the author of several papers, and the author or co–author of three books on semiconductor devices and circuits.

Dr. Gibbons was Associate Editor of the IEEE Transactions on Electron Devices from 1964 to 1970, and was a member of the NSF Graduate Fellowship Panel for this same period. He served on a Department of Health, Education, and Welfare Task Force on Higher Education and helped produce a report entitled Report on Higher Education. He has recently been appointed to the Educational Technology Subcommittee of President Nixon's Science Advisory Council.

ANDREW S. GROVE

Andrew S. Grove was born in Budapest, Hungary. He received the B.S. degree from the City University of New York in 1960 and the Ph.D. degree from the University of California, Berkeley, in 1963.

In 1963, he joined the Physics Department at the Research and Development Laboratory, Fairchild Semiconductor, Palo Alto, California, and in 1966 became Head of the Surface and Device Physics Section. In 1967, he was appointed Assistant Director of Research and Development at Fairchild Semiconductor. In July 1968, he participated in the founding of Intel Corporation in Mountain View, California, where he is currently Vice President and Director of Operations.

Since 1965, Dr. Grove has also been a Lecturer at the University of California, Berkeley, where he teaches a graduate course in semiconductor device physics.

Dr. Grove is a member of Tau Beta Pi, the American Physical Society, and IEEE. He has served on the Administrative Committee of the IEEE Electron Devices Group, and has served on the Electronic Materials Committee of the American Institute of Metallurgical Engineers. He is the author of over thirty technical papers, and a book, "Physics and Technology of Semiconductor Devices", Wiley, 1967.

He is the recipient of the IEEE Region Six 1969 Achievement Award for his contributions to the MOS device filed.

S. E. HARRIS

Stephen E. Harris was born in New York on November 29, 1936. He received the B.S. in electrical engineering from Rensselaer Polytechnic Institute in 1959, and the M.S. and Ph.D. degrees in electrical engineering from Stanford University in 1961 and 1963.

Since 1963 he has been on the faculty of Stanford University where he is now a Professor of Electrical Engineering. His research contributions include the first demodulation of frequency modulated light, the invention of the FM laser, the development of the first synthesis technique for birefringent optical networks, the development of a promising stabilization technique for high power lasers, the first observation of optical parametric flourescence, the operation of the first visible cw optical parametric oscillator, the invention of the tunable acousto-optic filter, and the demonstration of the first electronically tunable laser.

After graduation from Rensselaer, Dr. Harris worked for one year at Bell Telephone Laboratories. In more recent years he has consulted for Sylvania Electronic Systems and Spectra Physics. In 1968 he was one of the founders of, and now consults for Chromatix, a new corporation whose goal is the commercial development of tunable lasers and new types of spectroscopic instrumentation.

Dr. Harris is a member of Sigma Xi, Tau Beta Pi, Eta Kappa Nu, the IEEE, and the American Physical Society. He is a fellow of the Optical Society of America.

ROBERT S. SYMONS

Robert S. Symons was born in San Francisco, California, July 3, 1925. He received a BSEE degree with distinction in 1946 and an MSEE degree in 1948 both from Stanford University. In 1946 he joined Eitel–McCullough as a development engineer. In 1948 he worked first for Heinz and Kaufman Ltd., then for Pacific Electronics. In 1950 he became a development engineer at Varian Associates. Shortly thereafter he joined the U.S. Army Ordnance Corps, where he served at first on the staff of the Ordnance Guided Missile School and later as Liaison Officer to the U.S. Signal Corps Laboratories. Returning to Varian in 1954, Mr. Symons worked on the development engineering staff. In October 1961 he was appointed Manager, Super Power Tube Development. In March 1967 he became manager of the newly organized Super Power Tube Operation of the Palo Alto Tube Division of Varian. In this capacity, he is responsible for development and manufacture of all high–power, pulse, linear–beam tubes.

Mr. Symons' experience includes work with floating drift tube klystrons, reflex oscillators, high–power cw klystron amplifiers and super power klystrons and TWT's. He presently holds twelve microtube patents. He has been a coauthor of several papers relating to broadband and very high power klystrons. He is a member of Phi Beta Kappa and Tau Beta Pi.

RICHARD M. WHITE

Professor Richard M. White received his A.B. degree at Harvard College in 1951, his M.A. in 1952 and PhD in 1956 from Harvard University. He was engaged in microwave component research and development at General Electric in Palo Alto, and taught occasional extension courses from 1956 to 1962. He joined the faculty of the University of California, Berkeley in 1962, teaching in solid state electronics and electromagnetic fields and waves, and experimenting with computer aided instruction since 1968. Research interests include elastic–wave phenomena, and scanning electron microscopy.

Professor White received a Guggenheim Fellowship, spending 1968–69 at the Technical Institute of Munich. His honors include Phi Beta Kappa and Sigma Xi.

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In 1963, he joined the Physics Department at the Research and Development Laboratory, Fairchild Semiconductor, Palo Alto, California, and in 1966 became Head of the Surface and Device Physics Section. In 1967, he was appointed Assistant Director of Research and Development at Fairchild Semiconductor. In July 1968, he participated in the founding of Intel Corporation in Mountain View, California, where he is currently Vice President and Director of Operations.

Since 1965, Dr. Grove has also been a Lecturer at the University of California, Berkeley, where he teaches a graduate course in semiconductor device physics.

Dr. Grove is a member of Tau Beta Pi, the American Physical Society, and IEEE. He has served on the Administrative Committee of the IEEE Electron Devices Group, and has served on the Electronic Materials Committee of the American Institute of Metallurgical Engineers. He is the author of over thirty technical papers, and a book, "Physics and Technology of Semiconductor Devices", Wiley, 1967.

He is the recipient of the IEEE Region Six 1969 Achievement Award for his contributions to the MOS device filed.

S. E. HARRIS

Stephen E. Harris was born in New York on November 29, 1936. He received the B.S. in electrical engineering from Rensselaer Polytechnic Institute in 1959, and the M.S. and Ph.D. degrees in electrical engineering from Stanford University in 1961 and 1963.

Since 1963 he has been on the faculty of Stanford University where he is now a Professor of Electrical Engineering. His research contributions include the first demodulation of frequency modulated light, the invention of the FM laser, the development of the first synthesis technique for birefringent optical networks, the development of a promising stabilization technique for high power lasers, the first observation of optical parametric flourescence, the operation of the first visible cw optical parametric oscillator, the invention of the tunable acousto-optic filter, and the demonstration of the first electronically tunable laser.

After graduation from Rensselaer, Dr. Harris worked for one year at Bell Telephone Laboratories. In more recent years he has consulted for Sylvania Electronic Systems and Spectra Physics. In 1968 he was one of the founders of, and now consults for Chromatix, a new corporation whose goal is the commercial development of tunable lasers and new types of spectroscopic instrumentation.

Dr. Harris is a member of Sigma Xi, Tau Beta Pi, Eta Kappa Nu, the IEEE, and the American Physical Society. He is a fellow of the Optical Society of America.

ROBERT S. SYMONS

Robert S. Symons was born in San Francisco, California, July 3, 1925. He received a BSEE degree with distinction in 1946 and an MSEE degree in 1948 both from Stanford University. In 1946 he joined Eitel–McCullough as a development engineer. In 1948 he worked first for Heinz and Kaufman Ltd., then for Pacific Electronics. In 1950 he became a development engineer at Varian Associates. Shortly thereafter he joined the U.S. Army Ordnance Corps, where he served at first on the staff of the Ordnance Guided Missile School and later as Liaison Officer to the U.S. Signal Corps Laboratories. Returning to Varian in 1954, Mr. Symons worked on the development engineering staff. In October 1961 he was appointed Manager, Super Power Tube Development. In March 1967 he became manager of the newly organized Super Power Tube Operation of the Palo Alto Tube Division of Varian. In this capacity, he is responsible for development and manufacture of all high–power, pulse, linear–beam tubes.

Mr. Symons' experience includes work with floating drift tube klystrons, reflex oscillators, high–power cw klystron amplifiers and super power klystrons and TWT's. He presently holds twelve microtube patents. He has been a coauthor of several papers relating to broadband and very high power klystrons. He is a member of Phi Beta Kappa and Tau Beta Pi.

RICHARD M. WHITE

Professor Richard M. White received his A.B. degree at Harvard College in 1951, his M.A. in 1952 and PhD in 1956 from Harvard University. He was engaged in microwave component research and development at General Electric in Palo Alto, and taught occasional extension courses from 1956 to 1962. He joined the faculty of the University of California, Berkeley in 1962, teaching in solid state electronics and electromagnetic fields and waves, and experimenting with computer aided instruction since 1968. Research interests include elastic–wave phenomena, and scanning electron microscopy.

Professor White received a Guggenheim Fellowship, spending 1968–69 at the Technical Institute of Munich. His honors include Phi Beta Kappa and Sigma Xi.

CT GROUP SHORT COURSE ON LINEAR INTEGRATED CIRCUITS

CIRCUIT THEORY GROUP COURSE ON LINEAR INTEGRATED CIRCUITS REGISTRATION

(Should be received before March 6, 1972)

Mail to William Dunn, c/o IEEE San Francisco Section Office, 701 Welch Road – Suite 2210 Palo Alto, Calif. 94304

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

Name_____

Home or Bus. Address_____
(Street)

_____
(City, State and Zip)

Bus. Phone _____

IEEE Affiliation, _____ Member

_____ Student Member _____ Non-Member

IEEE Memb. No._____

A one-day short course on linear integrated circuits will be offered by the Circuit Theory Group on Saturday, March 11, 1972 (9:00 am - 5:00 pm) and will be held at the S.L.A.C. auditorium, 2575 Sand Hill Road, Menlo Park. The purpose of the course is to familiarize the practicing electronics engineer with design and applications of the state-of-the-art linear integrated circuits. Topics to be covered include a review of the basic design guidelines, i.e., the characteristics of integrated devices, component tolerance and yield considerations. The major portion of the seminar will be devoted to the specific classes of monolithic linear circuits such as operational amplifiers, regulators, D/A converters, analog multipliers, waveform generators and phase-locked loops.

Organizer for the course is Dr. Alan Grebene of Exar Integrated Systems, Inc. He will also present the opening lecture. Guest lecturers include Mr. R. Dobkin of National Semiconductor, and Dr. G. H. Wilson of Precision Monolithics, Inc.

Fee: $10.00 for IEEE members, $5.00 for students, and $20.00 for non-members. Fee includes text, and lunch. Facilities are limited. Those interested in taking the course are urged to complete and mail the registration form to be received before March 6. For information, Dr. Alan Grebene, EXAR, 733 N. Pastoria Ave., Sunnyvale 94086. Ph. (408) 732-7970.

A-ES TO TOUR PHILCO-FORD 60-FOOT ANTENNA

The Aerospace and Electronic Systems Group will sponsor a tour of the USASCA 60-Foot Antenna and Earth Terminal, and the large space-simulation test chamber at the Philco-Ford WDL facilities. The Earth Terminal, being developed for the Army, is in the final stages of checkout. The prominent antenna is visible from the Bayshore Freeway.

Mr. Warren Palmer, USASCA Programs Manager for WDL, will present program highlights and a system description prior to the tour.

To reach Philco-Ford, take the Bayshore San Antonio Road turnoff south to Charleston, west to Fabian Way (one block) and proceed north to the auditorium at 3825 Fabian Way (Building 56).

THE ELECTRON MICROPROBE SCANNING ELECTRON MICROSCOPE

The Stanford School of Earth Sciences microprobe is an Applied Research Laboratories' Model EMX-SM, installed in June 1970. Limited access to the instrument is available to off-campus users.

Dr. Ken Williams is Associate Professor of Geology in the School of Earth Sciences, Stanford. He took his B.Sc. and M.Sc. degrees from the University of New England, and his Ph.D. degree from the Australian National University. From 1956-1969 he worked with the Commonwealth Scientific and Industrial Research Organization, at the Australian National University. He joined the faculty at Stanford in 1969.

Dr. Charles M. Taylor is Research Associate in the School of Earth Sciences, Stanford University. He received his B.S. from the Mackay School of Mines, University of Nevada in 1956, and his M.S. and Ph.D. from Stanford. He worked as Senior Staff Scientist for Materials Analysis Company, Palo Alto, 1964-1970.

This instrument continues to find increasing applications in metallurgy, mineralogy, ceramics, biology and most fields dealing with solid materials. Microprobe techniques are by no means new, but their potential in many areas has not always been fully appreciated.

The designed function of the instrument is primarily to make non-destructive analyses of solid samples by finely focussing an electron beam on the surface of the sample, and analyzing the energies and intensities of selected lines from the emitted x-ray spectra. The energies are characteristic of the elements present in the sample. In general terms, the probe is capable of qualitative or quantitative analysis for any element of atomic number 5 (boron) or greater, in virtually any solid matrix.

The electron beam can be focussed to a "spot" 0.1 micron in diameter, so that analysis can be confined to a volume of about 1 cubic micron. With adequate calibration, the microprobe is also ideal for the measurement of thin-film thicknesses; the electron beam penetrates up to 5 microns, and attenuation of x-rays produced in the substrate on passage through the surface film is a measure of the thickness of the latter.

See CALENDAR for Program Arrangements

RELIABILITY
GREAT DOUBTS
FROM LITTLE PARTS GROW

William Schwartz, of Philco-Ford's Western Development Laboratories has survived a number of space system programs and is fully recovered from the recent qualification of an S-band transponder for the Mars-bound Viking Lander. But, he has this overwhelming urge to tell everyone (and especially the Reliability Group) about the problems he has encountered. The presentation will cover thick-and-thin-film types of hybrid microcircuits, both hermetically sealed and unsealed.

Plenty of time will be scheduled for the questions and discussion that can be expected on this topic—in fact, that probably will start at the meet-the-speaker dinner preceeding the meeting.

Mr. Schwartz has a BSME and an MS in Operations Research and is a Senior Engineering Specialist in Reliability Engineering. His space program experience includes three years with General Electric on the Apollo program at Cape Kennedy and more than five years at Philco-Ford.

Some problems (and pitfalls, even) in applying and getting acceptance of miniature parts in hybrid microcircuits for high-reliability space programs will be discussed at the March Reliability Group meeting.

MOTOR VEHICLE EXHAUST EMISSION CONTROL

The Santa Clara Valley Subsection of IEEE has selected a segment of the environmental quality problem for examination and review during their March 8, 1972 meeting.

Four areas to be examined are -

1. The need for emission controls with legislative and regulatory influences on the enforcement requirements.

2. Problems of detecting and measuring pollutants and some of the methods used.

3. Problems encountered in supplying pollutant measuring systems in the motor vehicle production environment.

4. Experiences of a motor vehicle manufacturer in meeting exhaust emission requirements and possible future developments.

Mr. Richard W. Anderson, Hewlett-Packard, will be chairman and moderator for this meeting. His panel members are Mr. Frank Covington, Environmental Protection Agency; Dr. Egon Loebner, Hewlett-Packard; Mr. Dwight D. Carlson, Process Computer Systems; and Mr. Bob Aldrich, General Motors Proving Grounds.

HOLOGRAPHY APPLICATIONS

In the decade since its rebirth, holography has been transformed from an optical curiosity into a highly developed branch of technology with a diversity of demonstrated applications. While the realism and beauty of the three-dimensional images produced by holograms has undoubtedly contributed to the popularity of the field, nonetheless many of the most promising applications of holography are quite independent of the third dimension. Applications of great current interest include holographic memories, holographic interferometry and holographic spatial filtering. This talk will review the basic principles of holography, discuss some of its more promising applications, and point out some of the basic new devices needed for holography to achieve its full potential.

Joseph W. Goodman received the A.B. degree in Engineering and Applied Physics from Harvard University, and the M.S. and Ph.D. degrees in Electrical Engineering from Stanford University. Since 1963 his fields of speciality have been Fourier optics, optical data processing, and holography. He is the author of the textbook Introduction to Fourier Optics. Dr. Goodman is an Associate Professor in the Department of Electrical Engineering at Stanford.

ENGINEERING OF NETWORKS OF LARGE COMPUTERS

This talk by Kent Pryor, Lawrence Livermore Laboratory, presents an engineer's view of the computer network now in operation at Lawrence Livermore Laboratory. The network of several large-scale computers provides users with terminal access, shared files, and remote job entry, so that each user has access to all of the resources of the system.

At present the network includes two CDC 6600's and two CDC 7600's, with a CDC STAR to be added in the future.

Mr. Pryor received his Bachelor's and Master's degrees from the Univeristy of California at Berkeley in Electrical Engineering and Computer Science. He is interested in various aspects of inter-computer communications and the interaction of hardware and software.

"ANALYSIS OF EEG"

The electroencephalogram (EEG) waveform is modeled as a stochastic process characterized by autoregressive and moving average parameters. EEG data taken from patients being monitored under anesthesia during surgery can then be analyzed. The aim is to identify parameters which will be useful in classifying the state of the central nervous system for return to the anesthesiologist.

Professor Gene F. Franklin received the BEE degree from the Georgia Institute of Technology in 1950, the MS in Electrical Engineering from MIT in 1952 and the D. Eng. Sc. from Columbia University in 1955. From 1955 to 1957, he was Assistant Professor of Electrical Engineering at Columbia. Since 1957 he has been with Stanford University where he is a Professor of Electrical Engineering and Associate Provost for Computing.

Mr. Devin H. Utter received the BSEE degree from the University of California (Berkeley) in 1957, the MSEE from the University of Santa Clara in 1966 and is currently a doctoral candidate at Stanford University. He is a research specialist at the Lockheed Missile and Space Company in Sunnyvale specializing in dynamic analysis and simulation.

TRILLION BIT LASER MEMORY SYSTEM

The Magnetics Chapter will hear Herb Tate discuss the Precision Instrument Company's laser mass memory system. Precise laser control and special recording medium allow the manufacture of a practical 10^{12} bit on-line memory. Speed, size, capacity, and access characteristics will be revealed. In addition, system operation procedures and detailed discussion down to the subsystem level will be included. This is the system being used in the ILLIAC IV.

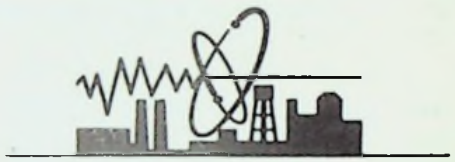
Herb Tate received his BSEE degree from Northrop Institute of Technology in 1965. He is presently Senior Design Engineer at Precision Instrument working on the laser memory systems. Formerly he was Technical Advisor for Aerospace Electronics at General Electric.

COMMUNICATIONS SOCIETY AND VEHICULAR TECHNOLOGY

A joint meeting of the Communications Society and Vehicular Group will be held at the Rodeway Inn in South San Francisco on Monday, March 20, 1972. Mr. Curt Palmer of Pacific Telephone will discuss the California Law Enforcement Telecommunications System (CLETS).

Until the inception of "CLETS" California law enforcement has not had a communications system capable of high-speed, high-volume crime information retrieval and transmission. Mr. Palmer will explain how communications terminals, lines, and communicating computers are becoming one of the most valuable assets in the fight against crime and criminal mobility.

Mr. Palmer attended Drake University, Des Moines, Iowa. He spent 5 years in radio and T.V. broadcasting. He joined the Bell System in December 1960 and is presently a Special Representative for Pacific Telephone in Sacramento.



ONE DAY TUTORIAL – DIGITAL COMPONENTS

IEEE Computer Society
March 25 Symposium on
Digital Components

(Must be received by March 21, 1972)

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

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Mail this form and payment to:
IEEE Computer Society Seminar
Division of Continuing Education
University of Santa Clara
Santa Clara, California 95053

The Division of Continuing Education, University of Santa Clara, and the IEEE Computer Society, will present a one day short course covering State of the Arts Developments and indicated trends in Digital Systems Technology at Daly Science Hall, Rm. 207, Univ. of Santa Clara, March 25, 1972, from 8:30 AM to 4:00 PM. This is the second course in a series of one day courses designed for the practicing engineer interested in current applications and design techniques in digital systems. An engineering or science degree, or equivelant background is assumed.

The second course will cover Digital Components including: Semiconductor logic and memory, and the overlap between them; Magnetic memory; Optical memory.

The sessions will include a review of the physics, operating characteristics, economic factors, and future trends for the primary digital components in each category.

Speakers: Floyd Kvamme, National Semiconductor; Harold Dell, Precision Instruments; Prof. William Dunn, Univ. of Santa Clara, who also is Program Chairman, and others to be announced.

Fees: IEEE Members $20.00, Student Members $15.00, Nonmembers $25.00. This includes notes, reading guide, and luncheon.

For more information, write or telephone IEEE Short Courses, Division of Continuing Education, Univ. of Santa Clara, Santa Clara, Ca. 95053. Phone (408) 984-4518.

Subsequent Short Course topics are: Design Techniques, and New Digital Applications.

To register, complete and mail the accompanying form.

See CALENDAR for Program Arrangements