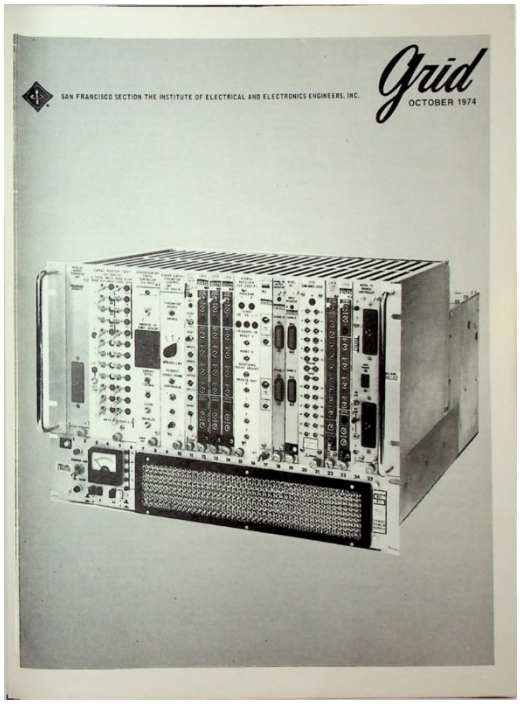
EDITOR'S PROFILE of this issue

from a historical perspective …

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

October, 1974:

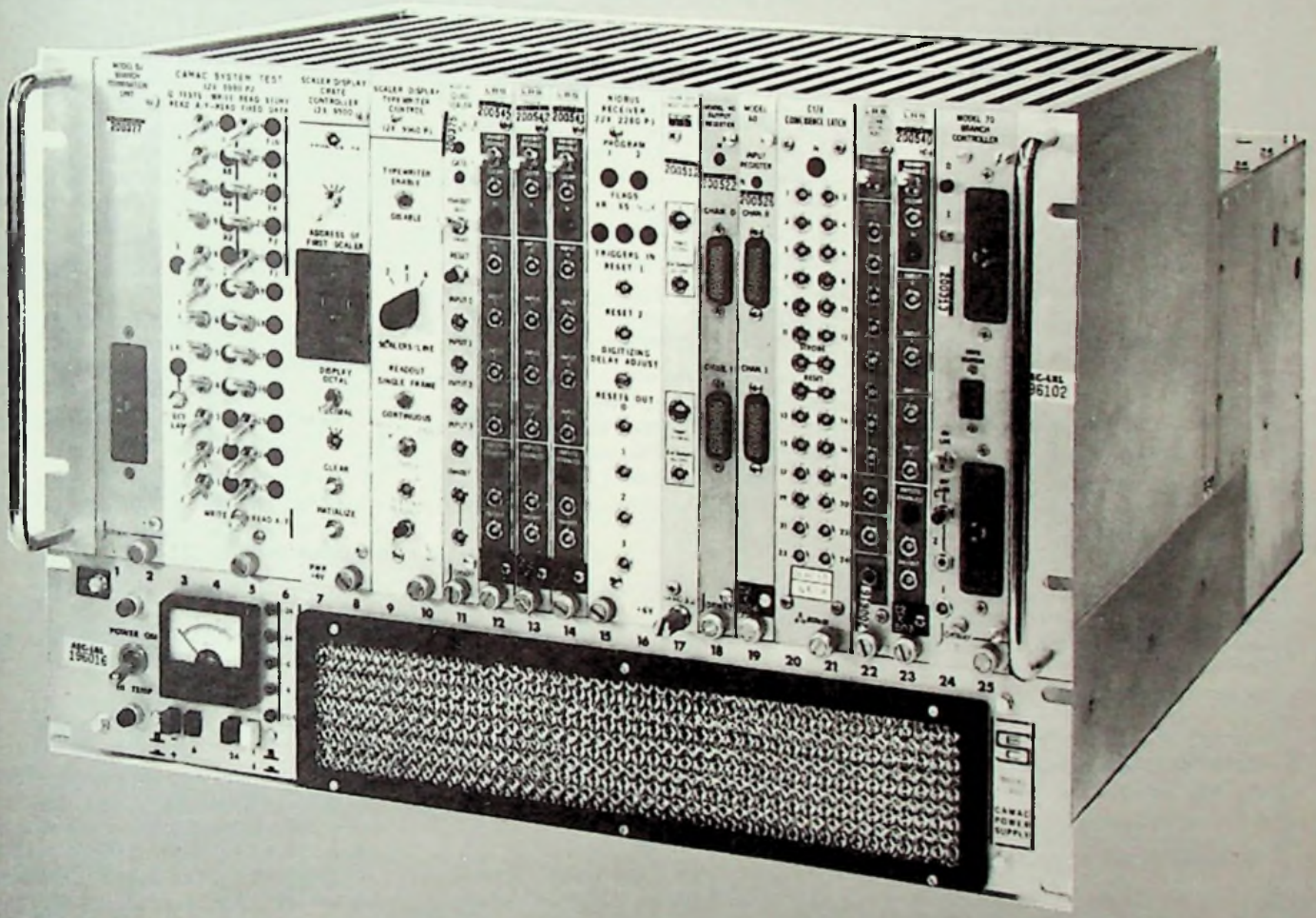
Cover: Shown is a rack-mount CAMAC system for industrial automation and laboratory control. More on page 2; a short course on CAMAC is described on page 8.



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

Grid

OCTOBER 1974



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ECC OPERATING COMMITTEE NAMED

The 25th Electronic Components Conference will be held May 12-14, 1975 at the Statler Hilton Hotel in Washington, D.C. The Design Engineers' Electronic Components Show (EIA) is scheduled to run concurrently with the Conference.

Information: Eleanor Madden, Pulbic Affairs Dept., Du Pont Company, Wilmington, Del. 19898. (302) 774-2358.

Statement of ownership, Management and circulation (Act of October 23, 1962: Section 4369, Title 39, U.S. Code). IEEE Grid is published monthly, September through May, except December. Office: 701 Welch Road, Suite 2210, Palo Alto, CA 94304. Headquarters: SAME. Publisher: San Francisco Section, the Institute of Electrical and Electronics Engineers, Inc. Editor: E.W. Morris. Owner: San Francisco Section, IEEE. No bondholders. Average number of copies of each issue during preceding 12 months: printed 8650 - paid circulation 8534 - subscribers and courtesy copies 42. Total distribution 8576; office use, etc. 74. Single issue nearest to filing date: printed 9000; office use, etc. 93. (Signed) E.W. Morris, Editor.
September 5, 1974

THE COVER STORY

CAMAC - Computer Automated Measurement And Control was the subject of the Nuclear and Plasma Sciences Society September Meeting. CAMAC is a modular computer interface, international user-developed, with no proprietary aspects or licensing requirements. The system has wide application in automation of industrial, medical and laboratory control and measurement.

On Saturday, October 26, the Society will present a one day tutorial, using speakers from several national and local sources. The purpose of this tutorial is to familiarize those who attend with CAMAC's design and versatile applications. Tutorial literature will be passed out. See page 8.

PHOTOGRAPHS

Your editor does not like repeatedly to be critical about photographs, but if you want them used in the GRID announcements, please review these instructions.

- Do not send Polaroid prints.
- Do not, under any condition send Polariod color prints.
- Do not send 8x10 inch portraits that require costly double reductions.
- Do not paper clip photographs. Tack the corners with magic tape to a sheet of paper or cardboard.

I thank all of you who have been cooperating with these requirements. You and I want a GRID that has an appealing appearance, but this cannot be obtained with Polaroid, which results in a "halftone" with no contrast.

COMPUTER AIDED ELECTRICAL DESIGN

The Industry Applications Society October meeting will be a talk and demonstration of a time share program's capability to aid in the design of electric power distribution systems.

Mr. John Leach will utilize a portable time share terminal with a CRT output in his presentation. Given motor size, load and location he will size and route motor circuits, size and locate motor controller and produce a materials list for a group of motors and other types of loads.

Mr. Leach is Brown and Caldwell's Chief Electrical Engineer. He has utilized the program in desgining waste water treatment plants in Sacramento and Santa Rosa.

PROFESSIONAL ACTIVITIES COMMITTEE IEEE EMPLOYMENT REFERRAL SERVICES

IEEE members seeking a new position may obtain current lists of job openings by sending a self-addressed stamped set of #10 (business size) envelopes to: IEEE Employment Services, 701 Welch Road, Suite 2210, Palo Alto, CA 94304.

The job openings list will be up-dated and mailed bi-weekly. A limit of 4 envelopes is requested. Confidentiality will be maintained. The mailed job listings represent the priority needs of employers.

Unemployed non-member EE's also may obtain job listings by payment of $20 ($40 if employed). This payment will apply toward IEEE membership and include all benefits.

The IEEE Employment Services also has at its office a list of Bay Area employers, resume forms and brochures, with helpful hints for obtaining and conducting job interviews.

IEEE members are urged to bring this service to the attention of their employers and personnel departments. Employers desiring to list openings, please send job description with a check for $35 per job listed, to the above address. A listing will receive four mailings at 2-week intervals.

AMENDMENT VOTE URGED

Two amendments are on the current IEEE ballot. One concerns the term of office and payment of a salary to the IEEE President; the second relates to the number of signatures required on a petition to place a candidate on the ballot.

The Professional Activities Committee urges all members who have not already done so, to find their ballot, study the arguments and VOTE.

THE CARUSO TAPES

The Information Theory Group's October meeting will feature a talk by Dr. Neil Miller on extracting the voice of a singer on a recording from background noise consisting of an orchestra and surface scratches. The problem is modeled as the extraction of a wideband signal in wideband noise. The technique used is to resynthesize the voice using vocoder-like techniques. Caruso's 1907 recordings are used as an illustrative example.

Neil Miller is with Systems Control, Inc. Previously he was with Stanford's Artificial Intelligence Laboratory and Prof. Stockham's group at the University of Utah.

MEETING CALENDAR

AEROSPACE & ELECTRONIC SYSTEMS/ELECTROMAGNETIC COMPATIBILITY/ENGINEERING MANAGEMENT
OCT. 16

Story on Page 7

JOINT MEETING: DEVELOPMENTS IN LINEAR INTEGRATED CIRCUITS. Dr. Alan B. Grebene, Vice Pres., EXAR Integrated Systems, Inc., Sunnyvale.

OCT. 16, Wednesday, 8:00 PM, Rick's Swiss Chalet, 4085 El Camino Way, Palo Alto. Cocktails at 6 and dinner at 6:45 PM. Reservations: Jim Welch, (415) 326-4350 x 4769 or Victor Turesin (408) 742-5336 by Oct. 16th.

ANTENNAS & PROPAGATION
OCT. 10

Story on Page 5

A MICROWAVE INTERVISIBILITY DETECTION SYSTEM. Mark K. Leavitt, ESL, Inc., Sunnyvale.

OCT. 10, Thursday, 8:00 PM, LMSC Auditorium, Bldg. 202, 3251 Hanover St., Palo Alto. Cocktails at 5:30 and dinner at 6:15 PM, Rick's Swiss Chalet, 4085 El Camino Way, Palo Alto. No reservations required.

COMMUNICATIONS SOCIETY
OCT. 9

Story on Page 5

THE DESIGN OF ELECTRONIC SWITCHING SYSTEMS. Amos E. Joel, Jr., Switching Consultant, Bell Labs., Holmdel, N.J.

OCT. 9, Wednesday, 8:00 PM, GTE Lenkurt, 1105 County Road, San Carlos. (Use Industrial Road entrance). No dinner. Reservations: Jorgen Bistrup (415) 593-8491 by Sept. 30th.

COMPUTER SOCIETY
OCT. 16

Story on Page 7

THE HP 21 MX MINICOMPUTER. John Stedman, Section Mgr. of 2000 Series Minicomputer, HP Co., Cupertino.

OCT. 16, Wednesday, 8:00 PM, University of Santa Clara, Daly Science Hall, Room 207. Dinner 6:15 PM, place to be announced. Reservations: Diana Sanchez (408) 984-4482 by 12:00 noon Oct. 14th.

CONTROL SYSTEMS SOCIETY
OCT. 24

Story on Page 6

A SURVEY OF CONTROL APPROACHES & EQUIPMENT FOR AUTOMATED TRANSIT SYSTEMS. Dr. Waheed Siddiqee, SRI, Pakistan.

OCT. 24, Thursday, 8:00 PM, SRI, Conference Room B, 333 Ravenswood Ave., Menlo Park. Dinner 6:00 PM, Refrectory, 1906 El Camino, Menlo Park. Reservations: Tom Magill, 326-6200 x 2664 by noon Oct. 24th.

EAST BAY SUBSECTION
OCT. 22

Story on Page 6

TOUR OF GENERAL MOTORS ASSEMBLY PLANT.

OCT. 22, Tuesday, 7:30 PM, 45500 Fremont Blvd., Fremont. No dinner. Further Information: Contact A.D. Johnson at (415) 835-8500.

ELECTRON DEVICES
OCT. 15

Story on Page 4

MICROPROCESSORS; Ralph Ungerman, Intel, Santa Clara and Gordon Force, National Semiconductor, Santa Clara.

OCT. 15, Tuesday, 8:00 PM, Rickey's Hyatt House, Executive Conference Room, 4219 El Camino Real, Palo Alto. Cocktails at 6 and dinner at 7:00 PM. Reservations: Section Office (415) 327-6622.

GOLDEN GATE SUBSECTION
OCT. 16

Story on Page 8

BART TRANS BAY TUBE. Viggo Bertelsen, BART Assistant Chief of Construction. SLIDE TALK.

OCT. 16, Wednesday, Noon, PG&E Cafeteria, 3rd Floor, 77 Beale St., SF. Pick up a lunch in the cafeteria and go to Room 303. Reservations: Leon Glahn, (415) 764-7757 by Oct. 15th.

INDUSTRIAL ELECTRONICS & CONTROL INSTRUMENTATION/ INSTRUMENTATION MEASUREMENT
OCT. 16

Story on Page 5

DIGITAL TECHNIQUES TO SOLVE BART'S TRAIN CONTROL. Don Evans, Lawrence Berkeley Labs, BART Study Group.

OCT. 16, Wednesday, 8:00 PM, Stanford University Physics Lecture Hall, Room PH 104. Physics Hall is the round building on the Walking Mall between Serra and Panama Streets. No dinner.

INDUSTRY APPLICATIONS SOCIETY
OCT. 22

Story on Page 2

COMPUTER AIDED ELECTRICAL DESIGN. John Leach, Chief Electrical Engineer, Brown and Caldwell. Talk and demonstration.

OCT. 22, Tuesday, 5:30 PM, Standard Oil Building, 555 Market St., SF, Room 924. No dinner. Reservations: Moon Yuen, (415) 764-4067 by Oct. 21st.

INFORMATION THEORY
OCT. 23

Story on Page 2

THE CARUSO TAPES. Dr. Neil Miller, Systems Control, Inc.

OCT. 23, Wednesday, 4:30 PM, Systems Control, Inc., 1801 Page Mill Rd., (corner Foothill Expressway), Palo Alto. Dinner: Des Alpes Restaurant, 6:30 PM, 201 California Ave., Palo Alto. Reservations: Miss Di Maria, (415) 497-4539 by Oct. 21st.

MAGNETICS SOCIETY
OCT. 24

MAGNETOMETERING: CONVENTIONAL AND UNCONVENTIONAL TECHNIQUES AND USES. Dr. William Goree and Dr. Sheldan Breiner.

OCT. 24, Thursday, 8:00 PM, SRI Conference Room B, Bldg. 1, 333 Ravenswood Ave., Menlo Park. No dinner.

MICROWAVE THEORY & TECHNIQUES
OCT. 15

Story on Page 6

MTT NATIONAL LECTURER PRESENTATION: LOW NOISE RECEIVERS; THEIR TECHNOLOGY AND SYSTEM APPLICATIONS. Sy Okwit, LNR Communications Inc., Farmingdale, N.Y.

OCT. 15, Tuesday, 8:00 PM, Hewlett-Packard Auditorium, 5301 Stevens Creek Blvd., Santa Clara. No dinner.

NUCLEAR & PLASMA SCIENCES SOCIETY
OCT. 26

Story on Page 8

ONE-DAY TUTORIAL SHORT COURSE ON CAMAC (Computer Automated Measurement and Control). See story for topics and speakers.

OCT. 26, Saturday, 8:30 AM to 5:00 PM at SLAC Auditorium, 2575 Sand Hill Road, Menlo Park. Fee: $15 for IEEE members; $25 for non-members. Students and unemployed members $5 without lunch or $7 with lunch. Member and non-member fees include lunch and handouts. Resevations: L. Burch A/E Room 102, SLAC, Bin 26, Stanford 94305; (415) 854-3300 x 2401 before Oct. 18th.

PARTS HYBIRDS & PACKAGING
OCT. 8 thru NOV. 12

Story on Page 4

SIX-SESSION COURSE ON SEMICONDUCTOR RELIABILITY. See story for speakers.

OCT. 8 thru NOV. 12, Tuesdays, HP Auditorium, 5301 Stevens Creek Blvd., Santa Clara. Fee: $15 for IEEE members; $25 for non-members. To register contact Jim Ostendorf at (408) 739-8001 or Joe Aichroft at (408) 968-9211.

POWER ENGINEERING SOCIETY
OCT. 8

Story on Page 8

POWER GENERATION FROM SOLID WASTES. A.H. Schmid, Staff Engineer, Combustion Power Co., Menlo Park.

OCT. 8, Tuesday, 7:00 PM, PG&E Cafeteria, 77 Beale St., Room 1760. Dinner: 6:00 PM, PG&E 3rd Floor. Reservations: C.W. Jordan, Bechtel Corp., (415) 546-1981 by Oct. 17th.

POWER ENGINEERING SOCIETY
OCT. 9 thru DEC. 11

Story on Page 8

10-Session Course on **MOTORS.** Motor and Generator Application, Protection and Control.

OCT. 9 thru DEC. 11, Wednesdays, 6 to 8:00 PM at PG&E Bldg., 245 Market St., first floor, Conference Room B, SF. See story for application. Fee: IEEE members $7.50; non-members $15. Mail applications to Emery Fabri, Bechtel Corp., 50 Beale St., SF 94119 or Richard Webster, PG&E Co.

RELIABILITY
OCT. 16

Story on Page 6

HOW RECLAIMED SILICON WAFERS AFFECT DEVICE YIELD AND RELIABILITY. John E. Lawrence, Pres. Silicon Material Inc., Mt. View.

OCT. 16, Wednesday, 8:00 PM, Stanford University Physics Lecture Hall, PH 101. Cocktails and dinner at Stickney's, Town & Country Village, El Camino and Embarcadero, Palo Alto at 6:00 PM. No reservations required.

SANTA CLARA VALLEY SUBSECTION
OCT. 11

LITHIUM-WATER POWER CELL BATTERY. Richard G. Davis, Lockheed Research Lab., Palo Alto.

OCT. 11, Friday, 12:30 PM, Lockheed Auditorium, Bldg. 202, 3251 Hanover St., Palo Alto.

SYSTEMS, MAN & CYBERNETICS
OCT. 9

Story on Page 7

SYSTEMS ENGINEERING AND TELECOMMUNICATIONS. Prof. Donald A. Dunn, Stanford Univ.

OCT. 9, Wednesday, 8:00 PM, SRI Conference Room B, Bldg. 1, 333 Ravenswood Ave., Menlo Park. Dinner: 6:15 PM, Butterfields (formerly Red Cottage) 1706 El Camino, Menlo Park. Reservations: Section Office (415) 327-6622.

VEHICULAR TECHNOLOGY
OCT. 21

Story on Page 5

COMMUNICATIONS BETWEEN POW'S. Commander Richard Stratton, U.S. Navy. (Prisoner of War for 6 years.)

OCT. 21, Monday, 8:00 PM, Recreation Bldg., Lockheed, Sunnyvale. No dinner. For information call Mark Young (415) 349-3111 x 320 by Oct. 18th.

ADDITION TO EXCOM

Student Activities Chairman: Harmon L. Hanig, 322 Santa Clara Ave., Redwood City 94061; (415) 877-4511.

STUDENT BRANCH COUNSELORS 1974-1975

Cogswell Polytechnical College: 3000 Folsom St., San Francisco 94110; (415) 647-1474. Counselor: RAYMOND DONG.

Fresno State University: School of Engineering, Fresno 93740; (209) 487-2079. Counselor: PROF. SAMUEL Y. LIAO.

Heald Engineering College: 1215 Van Ness Ave., San Francisco 91409; (415) 771-9192. Counselor: M.A. TZYTOVITCH.

San Francisco State University: 1600 Holloway Ave., San Francisco 94132; (415) 469-1529. Counselor: BRYON E. THINGER.

San Jose State University: EE Dept., San Jose 95192; (408) 277-2458. Counselor: LINCOLN D. JONES.

Stanford University: EE Dept., Stanford 94305; (415) 497-4839. Counselor: LOUIS PADULO.

U.S. Naval Postgraduate School: EE Dept., Monterey 93940: (408) 646-2254. Counselor: JOHN M. BOULDRY.

University of California, Berkeley: EE Dept., Berkeley 94720; (415) 642-3528. Counselor: DAVID A. HODGES.

University of Santa Clara: EE Dept., Santa Clara 95053; (408) 984-4482. Counselor: FREDERICK W. CLEGG.

NEREM - 74

Annual IEEE Northeast Electronics Research and Engineering Meeting, October 29, 30, & 31. John B. Hynes Veterans Auditorium, Boston, Massachusetts.

Information, please contact S. Swartz (617) 246-0782, The Drumbeater Co., Lakeside Office Park, Wakefield, Mass. 01880 or J.E. Severance, Raytheon Company, Lexington, Mass. 02173. (617) 862-6600.

MICROPROCESSOR DEVELOPMENT

The Electron Device Group October meeting will feature a two-part discussion on the system, design, and technology considerations of recently developed microprocessor products. The presentations will be made by Gordon Force of National Semiconductor Corp. who will discuss the system and interface circuit design of microprocessors, and by Ralph Ungermann of Intel Corp., who will discuss the chip design and technological aspects of microprocessor. An additional highlight of the meeting will be a hardware display of Intel and National Semiconductor products.

The speakers will cover such topics as the present and future applications of microprocessors, the performance requirements, the cost versus performance tradeoffs, and the competition with minicomputers.

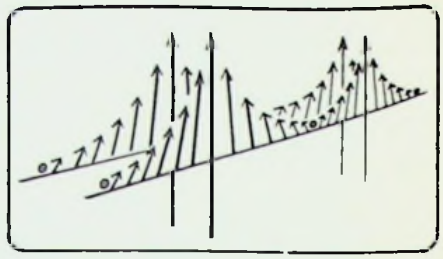
Gordon Force has responsibilities in Microprocessor Systems Engineering at National Semiconductor Corp. in Santa Clara, where he did the initial system design for the National IMP-16 MOS/LSI microprocessor.

Ralph Ungermann is Manager of Microcomputer Development at Intel Corp. in the product definition and development for the Intel microcomputer families.

DONALD O. PEDERSON ELECTED TO THE NATIONAL ACADEMY OF ENGINEERING

Professor Donald O. Pederson of the Department of Electrical Engineering and Computer Sciences has been elected to membership in the National Academy of Engineering. Election to the Academy is the highest professional distinction that can be conferred on an American engineer. It honors those who have made important contributions to engineering theory and practice or who have demonstrated unusual accomplishments in the pioneering of new and developing fields of technology.

Professor Pederson was elected for his leadership in integrated-circuits research and innovation in related computer-aided design. He established the first integrated-circuits facility in a university and received the IEEE Education Medal in recognition of his work. For the past eight years he also has been heavily involved in computer-aided simulators and design of integrated circuits.



TWENTIETH ANNUAL CONFERENCE ON MAGNETISM AND MAGNETIC MATERIALS - SAN FRANCISCO

December 3-6, 1974

The Twentieth Annual Conference on Magnetism and Magnetic Materials will be held at the Jack Tar Hotel in San Francisco, California, from Tuesday, December 3 through Friday, December 6, 1974. The purpose of this conference is to bring together scientists and engineers interested in all aspects of magnetism from basic research to applications. Accordingly, the Conference will cover all recent developments in magnetism and its associated technology. Those interested in any of the various branches of magnetism are invited to attend this Conference and to contribute to the technical sessions.

Additional information may be obtained from the local chairman: K. Lee, IBM Research Laboratory, K44/281, Monterey and Cottle Roads, San Jose, California 95193.

SEMICONDUCTOR RELIABILITY

The Parts Hybrid & Packaging (PHP) Group will hold a six session course on Semiconductor Reliability as seen from both the manufacturer and the user of semiconductor devices. Each speaker will present their facts and findings as seen from their vantage point. The course is designed for both the user of and manufacturer of semiconductor devices and will provide a practical knowledge of semiconductor reliability.

Speakers for the six session course are Odaid Kahn of Memorex, Jerry Parker of Intel, Jim Herrington of IBM, John Springer of Advanced Micro Devices, Richard Bjetz of Lockheed, and Bill Beecher of Fairchild.

Meetings will be held on Tuesday evening from 7:00 to 9:00 PM at HP-Santa Clara Auditorium starting October 8th. Cost is $15.00 for IEEE Members, $25.00 for Non-members. To register contact Jim Ostendorf at (408) 739-8001, or Dr. Joe Aichroth at (408) 968-9211.

See CALENDAR for Program Arrangements

A MICROWAVE INTERVISIBILITY DETECTION SYSTEM

The October AP-S meeting will feature a description of a microwave intervisibility detection system to be used by the U.S. Army in the instrumentation of simulated combat experiments, or "war games." The system is designed to provide objective data indicating the existence or absence of an unobstructed optical line-of-sight between the various "players," the data being applied in the measurement of human reaction parameters. The talk will provide a broad view of the entire program, beginning with system conceptualization and concluding with field testing and results.

The speaker will be Mr. Mark K. Leavitt of ESL, Inc., Sunnyvale. At ESL he has been involved extensively in DF system design and analysis and has studied the problem of electrically small antennas with precision phase performance. Mr. Leavitt received a BSEE degree from the University of Arizona in 1971, an MSEE degree from Stanford in 1973, and is currently pursuing a Ph.D at Stanford University.

BART AUTOMATIC TRAIN CONTROL PROVEN RELIABLE COMPUTER SUPERVISION ASPECT IMPROVED BY LBL IDEAS

The Bay Area Rapid Transit District has achieved transbay revenue service. Don M. Evans, of the Lawrence Berkeley Laboratory (LBL), will talk on the BART automatic train control (ATC) and computer supervision systems, in light of the problems faced satisfying the state's safety requirements for full system operation.

LBL has been consultant to a State Senate Committee, to analyze the technical merits of the computer supervision techniques employed to supplement the primary train protection system. In this capacity, LBL has made a number of recommendations to provide added safeguards to increase the overall level of BART safety. LBL technical staff members are also engaged in a study of the linear signal behavior and axle-shunting phenomena associated with the primary train detection circuitry. Computer-scientists are studying techniques to increase the effectiveness and reliability of the Central Train Control digital processors.

Mr. Evans is co-principal investigator of the LBL/BART Study Group. With LBL since 1961, he has been responsible for developing the digital control and data acquisition facilities at the Bevatron.

COMMUNICATIONS BETWEEN POW'S

The Vehicular Technology Group will have an unusual program on October 21, when they hear Commander Richard Stratton, U.S. Navy, speak on the subject of "Communications between POW's." Presently he is Executive Officer of the Plant Reservation Office, Lemoore, California.

Commander Stratton holds an A.B. degree in History and Government from Georgetown University, and a M.A. degree in International Relations from Stanford. He started his navy career as an Aviation Cadet in 1955, serving in various assignments, the last six years of which as a member of the Fourth Allied POW Wing in Hanoi, North Vietnam.

While flying with Carrier Air Wing Nineteen, Attack Squadron One Ninety-Two, Commander Stratton was captured by the North Vietnamese on 5 January 1967, on his twentieth combat mission. He was released to the U.S. Air Force on 4 March 1973, over six years later.

TWO STANFORD MEMBERS ELECTED TO THE NATIONAL ACADEMY OF ENGINEERING

Two Mid-Peninsulans, one a Stanford faculty member and the other a former member, have been elected to the National Academy of Engineering, the highest distinction that can be conferred upon an American Engineer.

Prof. James F. Gibbons of the Electrical Engineering Department, a solid state devices expert who has won numerous past awards for his research, was cited for his "leadership as a teacher, author and researcher in semiconductor electronics."

Former electrical engineering Prof. John L. Moll, who left Stanford in 1970 to join Palo Alto's Fairchild Camera and Instrument Corp., was cited for his "contributions to transitor analysis, the p-n-p-n swith, charge storage and hot electron devices."

FREDERICK E. TERMAN AWARD WON BY DR. LEON ONG CHUA

Dr. Leon Ong Chua, professor of electrical engineering and computer sciences, University of California at Berkeley, has won the Frederick Emmons Terman Award as the outstanding young educator in his field.

The Terman Award, sponsored by Hewlett-Packard Company, was established in 1969 and is presented annually by the Electrical Engineering Division, American Society of Engineering Education (ASEE). The award consists of $1,000 in cash, an engraved gold medal, a bronze replica and a scroll.

Dr. Chua, 38, received the award at the recent ASEE annual meeting at Rensselaer Polytechnic Institute, Troy, N.Y. The presentation was made by Dr. Terman. Dr. Chua is the author of the book "Nonlinear Network Theory" and has written a large number of technical papers. Two of the papers, entitled "Memristor--The Missing Circuit Element" and "On the Dynamic Equation of a Class of Nonlinear RLC Networks", have received special recognition.

THE DESIGN OF ELECTRONIC SWITCHING SYSTEMS

The Communications Society will hear Mr. A.E. Joel, Jr., Switching Consultant of the Bell Telephone Laboratories, Holmdel, N.J., discuss "The Design of Electronic Switching Systems" at their October 9 meeting.

In recent years, with the application of new technology in switching, the number of specific system architectures has increased. However, the principal functions and applied principles have not changed. It is becoming increasingly difficult to understand the basic design of switching systems incorporated in these basic concepts due to the manner in which the systems and their components are shown, named and described.

Mr. Joel will first describe the state-of-the-art in switching, and then discuss the application of basic functional subsystems to some specific central office switching systems.

See CALENDAR for Program Arrangements

CONTROL FOR AUTOMATED TRANSIT SYSTEMS

The Control Systems Society will have as its subject on October 24 "A Survey of the Control Approaches and Equipment for Automated Transit Systems." The speaker is Dr. Waheed Sidiqee. The talk will cover a survey of existing and proposed automated transit systems, other approaches being studied, and state-of-the-art in control equipment. There will be a brief discussion of the technical problems associated with high capacity transit systems.

Dr. Waheed Sidiqee obtained his BSEE in Pakistan, and his MSEE and PhD degrees in the U.S. He has had several years experience in the field of transportation and electric power systems, and currently is a Senior Research Engineer in TECG at SRI.

DATES TO REMEMBER

1974	Conference
Oct 6-10	EMB Conf. Drexel, Philadelphia
Oct 7-9	EASCON - Washington, D.C.
Oct 9-10	Display Devices/Systems, New York City
Oct 16-18	NEC Conf. Chicago
Oct 27-31	Int. Symp. on Inf. Theory Notre Dame
Oct 29 - Nov 1	NEREM Boston
Nov 11-13	Ultrasonics Symp. Milwaukee
Nov 18-20	4th IEEE Semiconductor/ Laser Conf. Lexington, Mass.
Dec 2-4	IEEE Nat. Telecommunications Conf. San Diego
Dec 3-6	Magnetism and Magnetic Mtls. San Francisco
Dec 9-10	Int. Conf. on Magnetic Bubbles, San Jose
Dec 9-11	IEEE Int. Conf. on Electron Devices, Washington, D.C.

For information contacts on any above Conferences, call the office or editor.

EBSS - TOUR OF GENERAL MOTORS ASSEMBLY PLANT

Have you ever toured a large automobile assembly plant? This opportunity will be presented by the East Bay Subsection on the evening of Tuesday, October 22 at the General Motors Assembly Plant in Fremont.

The GM Plant will be back on a two-shift operation at that time, producing over 1,100 1975 Model cars and trucks per day. This plant employs 5,500 workers in the 2.8 million square-foot complex. Models produced are the Chevelle, Monte Carlo, Buick Century and Chevrolet and GMC trucks.

Those attending should meet in the visitor's parking lot at 7:30 PM. The plant is located at 45500 Fremont Blvd. in Fremont and should be entered through the Main Gate (#5).

LOW NOISE RECEIVERS - THEIR TECHNOLOGY AND SYSTEM APPLICATIONS

The Microwave Theory and Techniques Society October meeting will feature a presentation by the National Lecturer, S. Okwit. He will speak on the topic: "Low Noise Receivers; Their Technology and System Applications". The lecture will begin with a general discussion on the fundamentals of low noise reception, followed by a state-of-the-art review of the relative performance of well known low noise receivers such as parametric amplifiers, tunnel diode amplifiers, mixers, transistor amplifiers, etc.

Important applications of low noise receivers in systems such as radar, communication, and radiometry will be discussed, highlighting optimum receiver selection and relative tradeoffs from both performance and cost points of view.

S. Okwit is a very active participant in IEEE affairs, having been Editor of the IEEE Transactions on Microwave Theory and Techniques from 1965 to 1968, and Chairman of the National MTT Administrative Committee in 1971. He was also a member of the IEEE Publications Board from 1969 to 1971.

S. Okwit was elected to the grade of Fellow of the IEEE in 1965 for "contributions to solid-state devices, particularly masers, parametric amplifiers and ferrite devices". He is presently with LNR Communications, Inc., Farmingdale, N.Y.

HOW RECLAIMED SILICON WAFERS AFFECT DEVICE YIELD AND RELIABILITY

Errors in diffusion processes, photoetching and masking operations, lead to unuseable wafers in the semiconductor industry. Methods for salvaging and reusing such wafers will be discussed at the Reliability Group meeting, October 16, by John Lawrence, at 8 PM in Physics 101, Stanford University.

Procedures for reclaiming wafers include repolishing surfaces, bulk gettering, and backside grinding. Fundamental to all reclaimed wafers is an improvement in yield because the lattice point defect concentrations have been stabilized by semiconductor device processing temperatures rather than the crystal solidification temperature. The devices fabricated from reclaimed wafers have lower leakage currents and higher yield.

John E. Lawrence is president of Silicon Material, Inc. He holds a Masters degree in Physics from Kansas State University.

SYSTEMS ENGINEERING AND TELECOMMUNICATIONS

During the coming year, the San Francisco SMC chapter will attempt an in depth assessment of system analysis techniques applied to a variety of societal problems such as energy, health care, environment, telecommunications, and transportation. The first speaker will be Prof. Donald A. Dunn, Associate Chairman of the Department of Engineering Economics Systems at Stanford and a noted authority on telecommunications systems and governmental policy. Prof. Dunn will speak on existing and potential applications of systems engineering in the planning, development, and operation of telecommunication systems. One of Prof. Dunn's recent research interests has been the economics of computer communication networks.

THE HP 21MX MINICOMPUTER

The Computer Society October 16 meeting will feature a presentation on HP's new minicomputer family. The new line utilizes the latest semiconductor and packaging technology to achieve reductions in cost, size, weight, and power consumption.

John Stedman will describe development goals such as memory system enhancement, increased capability for user microprogrammability, more tolerant power supply specifications, and reduced cost. The presentation will feature the use of 4K N-Channel MOS memory, extensive use of MSI (including low power schottky) logic, packaging and power supply.

Mr. Stedman, Section Manager of HP's 2000 Series Minicomputer Hardware Engineering, has been involved in the design of Pulse Height Analyzers, Nuclear Medicine systems, and computer hardware. He holds an MSEE degree from San Jose State University.

SYSTEM ENGINEERING APPLIED TO SOCIETAL PROBLEMS

System engineering is widely heralded as a means for solving complex societal problems. How successful are the results?

During the coming year, the San Francisco SMC chapter will attempt an in depth assessment of system analysis techniques applied to a variety of topical problems such as energy, health care, environment, telecommunications, and transportation. In a departure from conventional format, sequences of 2 or 3 talks will be presented on each topic. A typical series will begin with an overview of a particular problem area introducing applicable analysis techniques. The techniques will then be illustrated with a detailed case study. The unit might conclude with a panel discussion on future prospects. A final series of talks will attempt to provide perspective by critically evaluating the success of system engineering in each of the problem areas.

The first series of talks on telecommunications will begin Wednesday, October 9 with an overview by noted authority Donald A. Dunn of Stanford University. Suggestions for other themes and speakers are solicited. Volunteers interested in participating in the assessment study are encouraged to contact Jay M. Tenenbaum of SRI, Ed Sondik of Stanford University, or Arlin Torbett of Systems Control, Inc.

AES/EMC/EM - NEW DEVELOPMENTS IN LINEAR INTEGRATED CIRCUITS

The Aerospace Electronics Systems and Electromagnetic Compatability Group's joint meeting on October 16 will feature new highly complex linear LSI circuits available, which extend capabilities of monolithic integrated circuits. New generation monolithic waveform generators and phase-locked loops will be discussed, including applications. Design examples will be used to illustrate capabilities, also limitations.

The speaker will be Dr. Alan B. Grebene, Vice Pres. of Engineering at Exar Integrated Systems, Inc. Dr. Grebene received his BSEE degree from Robert College, Istanbul, Turkey; his MSEE from UC Berkeley, and PhD from Rensselaer Polytechnic Institute.

He has published numerous papers and holds several patents in the fields of solid state devices and integrated circuits. He also is author of the book, "Analog Integrated Circuit Design."

REMEMBER DECEMBER

The GRID will not be issued in December, so December meetings, if any, should be announced in the November issue. Deadline, October 31, or earlier if possible, so we will know what to expect.

EIGHTH ASILMOR CONFERENCE

The Eighth Asilomar Conference on Circuits, Systems, and Computers is scheduled for December 3-5, 1974, at the Asilomar Hotel and Conference Grounds in Pacific Grove, California. The conference features original research and applications-oriented papers in the areas of microcircuits, active RC and passive filters, computer aids to circuit design and analysis, network theory, analog and digital circuit design, digital systems, digital filters, communication theory and circuits, microwave circuits, computer communication, and control systems. Special sessions on large-scale integration and active device modeling are being formulated, and panel discussions on computer-aided design and consumer electronics are planned. A ladies program is also being organized.

Information: Dr. John Choma, Jr., Hewlett-Packard Company, 5301 Stevens Creek Boulevard, Santa Clara, California 95050.

IEEE INTERCON AND NEREM AGREE ON 1976 BOSTON CONFERENCE

Two of the nation's foremost technical conventions -- IEEE INTERCON and NEREM -- will be joined to form a major new Eastern Seaboard conference, effective in the Spring of 1976. Board of directors responsible for the two high-technology activities have agreed in principle to a plan whereby the new conference and exposition will be held in Boston, May 11-14, 1976, in New York in 1977, and alternately each year in Boston and New York thereafter. NEREM will be held in Boston in the Fall of 1974, and INTERCON will be in New York in the Spring of 1975.

Directors of NEREM (Northeast Electronic Research and Engineering Meeting) and members of the IEEE Conference Board, which directs the IEEE international convention and exposition (IEEE INTERCON), have both approved the plan. It also has the approval of the IEEE Executive Committee.

1975 INTERCON CHANGE

The international convention and exposition of the Institute of Electrical and Electronics Engineers--IEEE Intercon--drops a day, adds an evening, and moves into a new month in 1975. The show and convention has traditionally occupied the last week of March, and has been a four-day event.

For 1975, however, Intercon will be held April 8, 9, and 10, and the exhibition at the New York Coliseum will remain open until 9 p.m. on Wednesday, April 9. The technical convention program will be presented on the same dates in the Hotel Americana.

Exhibit hours for next Spring will be: 9:30 to 6 p.m. on Tuesday, April 8 and Thursday, April 10, and 9:30 a.m. to 9 p.m. on Wednesday, April 9.

See CALENDAR for Program Arrangements

EDUCATIONAL OPPORTUNITIES

University of California - Extension

"Review of Electrical Engineering." 7-10 p.m. Mondays Jan. 6 through April 14, Barrows Hall, Berkeley. Fee: $90.00. Non-credit course.

Information: Continuing Education in Engineering, UC Extension, 2223 Fulton Street, Berkeley 94720. Phone (415) 642-4151.

THE BART TRANS-BAY TUBE

The Golden Gate Subsection October meeting will feature a slide talk on the construction, mechanical and electrical highlights of the tube.

Our speaker, Viggo Bertelsen, is Assistant Chief of Construction. He was responsible for the Trans Bay Tube construction contract. Pick up a lunch in the cafeteria and go to room 303 to eat and hear Viggo speak.

POWER GENERATION FROM SOLID WASTES

The Power Engineering Society's October 8 meeting will feature a presentation on power generation from solid wastes. In recent years, the concept of power generation from solid wastes has become increasingly important in view of high fuel costs and large solid waste disposal problems. A pilot plant has been recently designed to burn different types of wastes in a fluid bed combustor, and the gas produced is used to drive a 1,000 kw gas turbine generator. To date, this pilot plant has successfully operated approximately 500 hours, burning municipal solid waste, wood waste, and high-sulphur coal with sulphur suppression using dolomite injection.

This talk will be presented by Mr. A.H. Schmid, who has been associated with the development and design of the pilot plant since its conception. The speaker will discuss the design details and operating experience of this pilot plant. Mr. Schmid is a staff engineer with Combustion Power Company of Menlo Park, California.

ONE-DAY TUTORIAL SHORT COURSE - SATURDAY OCTOBER 26, 1974

CAMAC: Computer Automated Measurement And Control

Sponsored by IEEE Education Group/ Nuclear and Plasma Sciences Society, the One-Day Tutorial Course will be presented at the SLAC Auditorium, 2575 Sand Hill Road, Menlo Park, on Saturday, October 26, 1974, from 8:30 AM to 5:00 PM.

Fees: IEEE Members $15. Non-members $25. Student or Unemployed Member, without lunch, $5, with lunch $9. Fee includes lunch and handouts.

Mail to: IEEE-NPSS
c/o L. Burch, A/E Room 102
SLAC, Bin 26
Stanford University
Stanford, CA. 94305
Phone: 854-3300, Ext. 2401
Mail Before October 18, 1974

CAMAC is a modular computer interface standard for applications in real-time data acquisition and control. The system has wide application in automation of industrial, medical and laboratory control and measurement. CAMAC is an international user-developed standard with no proprietary ascpests of licensing requirements. This course presents a general description of the system concept, hardware, software, and examples of applications.

PROGRAM

- Overview - CAMAC, An International Standard Interface System
- CAMAC Standard Hardware
  - The Modular Concept
  - Modules, Controllers and Crates
  - Crate Interconnection
  - Interrupt Handling
  - Serial and Parallel Systems
  - Computer Interfacing
- CAMAC Standard Software
  - Systems Software Considerations
  - Development of Computer-Independent Software for CAMAC
  - Reliability Consideration
- Real-Time Applications
  - Industrial Process Control
  - Laboratory Automation
  - Medical Applications

Speakers will include:

L. Costrell, National Bureau of Standards, Washington, D.C.
D. Horelick, Stanford Linear Accelerator Center
D. Machen, Los Alamos Scientific Laboratory
E. Barsotti, National Accelerator Laboratory, Batavia, Illinois
D. Zobrist, ALCOA, Pittsburgh, Pennsylvania
Fred Kirsten, Lawrence Berkeley Laboratory

October 26, 1974, Course on CAMAC: Computer Automated Measurement And Control

Name: _____

Address: _____

_____
(City, State, Zip)

Telephone: _____

____Member IEEE ____Student

____Unemployed ____Non-member

Enclosed is check (PAYABLE TO IEEE-NPSS) in the amout of $ _____

POWER EDUCATIONAL COURSE

Motor and Generator Protection

A course on **Motor and Generator Application, Protection, and Control** will be held on Wednesdays, Oct. 19 through Dec. 11, 1974 at 6:00 to 8:00 PM in the P.G.&E. Bldg., 245 Market St., first floor, Conference Room B, San Francisco. Tentative lecture topics are: Induction Motors I, Induction Motors II, Synchronous Motors, Special Motors, Motor Protection I, Motor Protection II, Methods of Motor Control, Generators, and Generator Protection. Lecturers have been invited from G.E., Westinghouse, Bechtel, P.G.&E., etc. Mail applications to Mr. Emery Fabri, Bechtel Corp., 50 Beale St., S.F. 94119, (415) 764-4582 or Mr. Richard Webster, P.G.&E. Co., (415) 781-4211, ext. 3143. Make checks payable to S.F. IEEE Power Group.

APPLICATION

Name _____

Address _____

Phone: Bus _____ Home _____

( ) IEEE $7.50 ( )Non-member $15

See CALENDAR for Program Arrangements