EDITOR'S PROFILE of this issue

from a historical perspective …

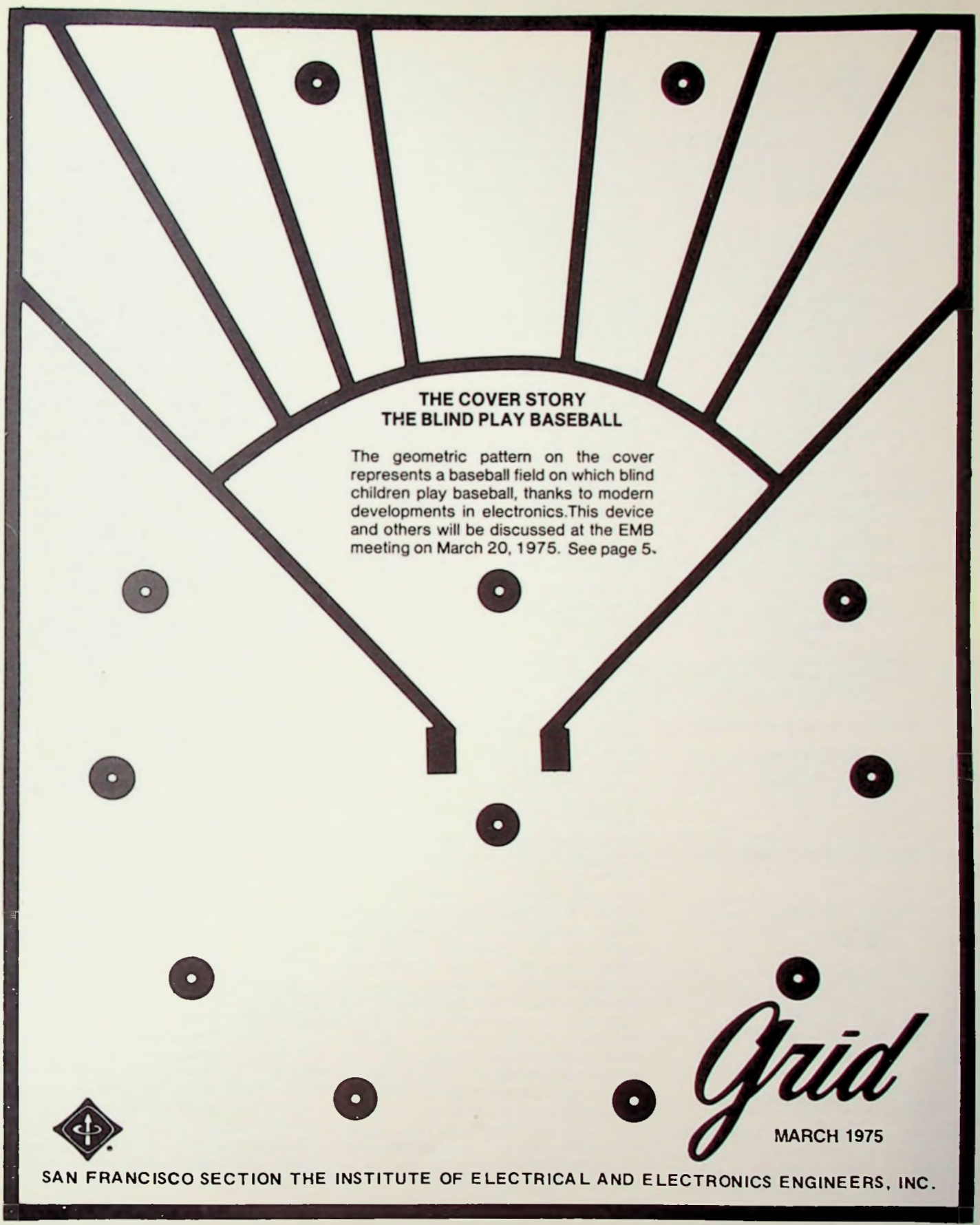
with Paul Wesling, SF Bay Area Council GRID editor (2004-2014)

March, 1975:

Cover: The diagram represents a baseball field on with blind children can play, thanks to modern electronics. Story on page 5.

Page 6: O.D. (Bud) Trapp discusses Silicon-on-Sapphire technology – design, performance, materials, and reliability. Bud had a focus on reliability; he and I worked together in later years within the SCV Reliability Chapter.

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



THE COVER STORY
THE BLIND PLAY BASEBALL

The geometric pattern on the cover represents a baseball field on which blind children play baseball, thanks to modern developments in electronics.This device and others will be discussed at the EMB meeting on March 20, 1975. See page 5.

Grid

MARCH 1975

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

IEEE EMPLOYMENT REFERRAL SERVICES
SEE PAGE 8 FOR DETAILS.

Grid

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EDITORIAL PROBLEMS

If you want a late story included in the GRID, copy must reach me by no later than the 3rd of the month preceding month of issue. Use Special Delivery if late. Stories received after the 3rd of the month can not be included. Address and telephone listed above, and don't forget to advise Jean Helmke about your action.

MID-TERM COMMENTS FROM THE PAC CHAIRMAN

By Bill Raukko
PAC Chairman
The EE and Modern Problems

Twenty years ago our society was characterized by apathy and indifference. Needless to say, today things are quite different. All of us share concerns brought on by the shortage of energy and the recession. We all experience the pangs of an uncertain future. While society ponders these problems, the electrical engineering profession witnesses discouraging remarks from many of its members. Engineering is cast by many as a dead end career, a mistake, a bad gamble for a young person to undertake. It is interesting to briefly examine the relationship of the social economic problems to those of the engineering profession.

The Western World is not only suffering from a lack of adequate energy to meet demands (resulting from a failure to develop alternate energy sources a decade ago) and recession (resulting largely from low productivity and inefficiencies), but also from "runaway technology". To a degree, all of these factors are related. Although the problems are extremely complex, hindsight indicates that accepting the profits of what seems to work without preparing for the unexpected has brought us to today's situation. We have tended to use (or misuse) technology as long as profitability persists and to solve the problems that have occurred by crisis management. Over consumption and inadequate planning have been common. Should our response be to steer away from technology because of its contribution to our problems? As ridiculous as this seems to most engineers, public and government pressure has moved us in this direction over the past half decade. Despite the fact that the backbone of our society is its technology, R&D effort is often discouraged unless its goals are well defined. The naivety of this approach to R&Dis emphasized by such developments as the transistor which was intended as a vacuum tube replacement, but became the technology base for computers, hand held instruments, and equipment for servere environments. It is also interesting to note that engineers often advance in their organizations only by becoming managers. Thus, to a large degree, they are rewarded for their non-engineering, and an ambitious individual often feels compelled to do less engineering and be less of a technologist as he advances. And why is it that technologists have so little direct impact on the decisions which mold our society? There are only token technologists in contact with Congress or the President or any other key public decision makers. But then, engineers and scientists seem to think in such broad, long range terms and our problems are here today . . .

Let's consider the situation in the engineering profession. We have already alluded to the dissatisfaction many engineers express regarding their careers. Although many EE's would challenge these statements because they are satisfied working for their current employers, the outcry is too strong for any concerned engineer to ignore. The facts tend to support the dissenters. Half of all EE's change jobs every five years. Only 16% ever collect a pension. Unemployment figures swell for engineers over forty. Young people considering an engineering career are turned off by news of lay-offs and refuse to believe college recruiters who point to those engineers who have landed satisfying careers. They will not believe it any longer. Let's face it. The only true incentive to an engineering career is to improve conditions so that all or most engineers share a satisfaction with their life's work and the benefits are obvious to everyone. Certainly an individual seeking a career in medicine would not be subjected to discouraging comments from doctors who are over forty. Industry needs good, young engineers, and so does the profession, and so does society.

There is a common thread running through the problems discussed above. We believe good engineering should be rewarded for its own sake. Three quarters of a century ago, a technical innovator could design a better widgit, patent it, and just maybe he would become a millionaire. Today we are restricted by patent laws, corporate pressures, and discouraging careers.

We need to work to renovate the spirit of the past. How do we accomplish this glorious goal? Should we form new organizations? Maybe say "the hell with it" and use the system to benefit us personally if we can? Well maybe, but the odds on new organizations and self centered efforts aren't too good. IEEE is there now and it's working to achieve improvements in the engineering profession. A lot of it sounds like motherhood and apple pie, but the PAC believes in the strength of the engineering profession and the importance of technologists to society and we're working on it.

If you feel as moved as we do, join us. There is room for every concerned EE. ■

IEEE MEETING CALENDAR

AEROSPACE & ELECTRONIC SYSTEMS/ELECTOMAGNETIC COMPATIBILITY ENGINEERING MANAGEMENT
MAR. 19

Story on Page 8

ENGINEERING MANAGEMENT & ELECTROMAGNETIC COMPATIBILITY. Fred J. Nichols, Pres., Lectro Magnetics Inc.

MAR. 19, Wednesday, 8:00 PM, Rick's Swiss Chalet, 4085 El Camino Way, Palo Alto. Cocktails at 6 and dinner at 6:45 PM. Reservations: Vic Turesin (408) 742-5336 or Jim Welch (415) 326-4350, Ext. 4769 by March 18th.

ANTENNAS & PROPAGATION SOCIETY
MAR. 13

Story on Page 4

A MULTIPLE BEAM LENS ANTENNA FOR COMMUNICATION SATELLITES. Dr. Leon J.Ricardi, M.I.T. Lincoln Laboratory.

MAR. 13, Thursday, LMSC Auditorium, Bldg. 202, 3251 Hanover St., Palo Alto. Cocktails at 5:30 and dinner at 6:15 PM at Rick's Swiss Chalet, 4085 El Camion Way, Palo Alto. No reservations required.

COMMUNICATIONS SOCIETY
MAR. 11

Story on Page 7

SPEECH RESIDUAL ENCODING BY ADAPTIVE DELTA MODULATION. Dr. D.T. Magill, Program Mgr. for Speech Processing at SRI.

MAR. 11, Tuesday, 8:00 PM, SRI, Conference Room B, Bldg. 1, 333 Ravenswood Ave., Menlo Park. Information: E.K. Peterson (415) 591-8461.

COMPUTER SOCIETY
MAR. 19

Story on Page 4

PERIPHERAL ORIENTED LSI. Krishna Rallapalli, Staff Engineer, Fairchild.

MAR. 19, Wednesday, University of Santa Clara Daly Science Center. Cocktails 6:15 and dinner at 7:00 PM, Benson Parlors at Benson Center, U. Santa Clara Corner of the Alameda & Santa Clara St. Reservations: Lil Redfield (408) 742-5395 before noon March 17th.

EAST BAY SUBSECTION
MAR. 6

Story on Page 7

HOW CAN ELECTRICAL ENGINEERING BECOME A WORTHWHILE PROFESSION? Panel: William Raukko, Moderator.

MAR. 6, Thursday, 7:30 PM, PG&E Service Center, 4801 Oakport St., Oakland. High Street exit off Freeway 17. No dinner.

ELECTRON DEVICES
MAR. 18

Story on Page 8

RECENT DEVELOPMENTS IN WATCH DISPLAYS & ELECTRONICS. H.T. Chua, Microma, Inc., and David Evans, HP Co.

MAR. 18, Tuesday, 8:00 PM, Rick's Swiss Chalet, 4085 El Camino Way, Palo Alto. Cocktails at 6 and dinner at 7:00 PM - $6.00 - braised roast beef. Reservations: Section Office: (415) 327-6622.

ENGINEERING IN MEDICINE & BIOLOGY
MAR. 20

Story on Page 5

COMMUNICATIONS ENGINEERING APPLICATIONS FOR THE PHYSICALLY HANDICAPPED. L.M. Waytt, PTT Engineer.

MAR. 20, Thursday, 8:00 PM, Room M 106, Stanford Medical Center. Dinner 6:00 PM, Stickney's, El Camino and Embarcadero. Reservations: Carla Veillette (408) 732-6000, Ext. 472 by March 19th.

GOLDEN GATE SUBSECTION
MAR. 19

Story on Page 7

THE SOCIO ECONOMIC ASPECTS OF OUR PROFESSION. Carleton A. Bayless, Div. Engineer, Systems Design, PTT, and Director of Region Six.

MAR. 19, Wednesday, 12 noon, PG&E Cafeteria, 3rd floor, 77 Beale St., San Francisco. Pick up a lunch in the cafeteria and join us in the dining room. Reservations: Leon Glahn, (415) 764-7757 by March 18th.

INDUSTRY APPLICATIONS SOCIETY
MAR. 25

SO YOU WANT TO START YOUR CONSULTING & DEVELOPMENT COMPANY IN THE AREA OF ELECTRIC POWER CONVERSION? Don Partridge, Peripheral Power Systems.

MAR. 25, Tuesday, 8:00 PM, Peripheral Power Systems, 460 Aldo, Santa Clara. No dinner. Reservations: Moon Yuen (415) 764-4067 by March 24th.

INFORMATION THEORY
MAR. 26

Story on Page 6

ERGODIC AND INFORMATION THEORY. Professor Ornstein at Stanford University.

MAR. 26, Wednesday, 4:30 PM, SRI Conference Room B, 333 Ravenswood Ave., Menlo Park. Dinner 6:15 at Mediterranee, 1120 Crane, Menlo Park. Dinner reservations: MS. C. Carrington, (415) 497-4539 by March 25th.

MAGNETICS SOCIETY
MAR. 27

MAGNETIC CONFINEMENT FOR FUSION. Dr. Clyde Taylor, Lawrence Livermore Lab.

MAR. 27,Thursday, 8:00 PM, SRI, Conference Room B, 333 Ravenswood Ave., Menlo Park. No dinner.

MICROWAVE THEORY & TECHNIQUES
MAR. 20

Story on Page 6

A FEED-FORWARD S-BAND MIC AMPLIFIER SYSTEM. Chi-Chia Hsieh, Farinon Electric Co., San Carlos.

MAR. 20, Thursday, 8:00 PM, SRI, Bldg. 44, Laurel St., Menlo Park. No dinner.

NUCLEAR & PLASMA SCIENCES SOCIETY
MAR. 18

Story on Page 6

LASER INDUCED FUSION. Robert Hofstadter.

MAR. 18, Tuesday, 8:30 PM, International Inn Restaurant, 326 South Airport Blvd., SF Airport. Cocktails at 6:30 and dinner (roast chicken) at 7:00 PM. Price $7.00 (incl. Tax & Tip). Reservations: Cynthia Whiteside (415) 843-2740, Ext. 6341 before March 15th.

POWER ENGINEERING SOCIETY
MAR. 11

Story on Page 7

LOW TEMPERATURE ELECTRIC POWER GENERATION AND TRANSMISSION. Dr. Mario Rabinowitz, EPRI, Palo Alto.

MAR. 11, Tuesday, 12:30 - 1:30, PG&E Cafeteria, 77 Beale St., Third Floor, San Francisco. Lunch at 11:30 in PG&E Cafeteria. Reservations: Carol Franke, (415) 781-4211, Ext. 1442 by March 11th.

RELIABILITY
MAR. 26

Story on Page 8

SILICON ON SAPPHIRE TECHNOLOGY. Dr. O.D. Trapp of Technology Associates.

MAR. 26, Wednesday, 8:00 PM, Physics Lecture Hall PH 101, Stanford University. Cocktails and dinner at 6:00 PM at Stickney's, Embarcadero & El Camino, Palo Alto. Reservations: Section Office (415) 327-6622 by March 26th.

SANTA CLARA VALLEY SUBSECTION
MAR. 12

Story on Page 5

JOINT MEETING WITH STUDENT CHAPTERS: WHAT DO ENGINEERS REALLY DO?

MAR. 12, Wednesday, 8:00 PM, Gaudalupe Room, Student Union, San Jose State University. No reservations.

VEHICULAR TECHNOLOGY
MAR. 17

PROJECT OSCAR - AMATEUR RADIO SATELLITES. M.C. Towns and Lance Ginner, Lockheed M & S Co.

MAR. 17, Monday, 8:00 PM, Belmont Holiday Inn, by Marine World. Dinner 7:00 PM. Reservations: Bob Tellefsen, (415) 349-3111, Ext. 323 by March 14th.

APS - A MULTIPLE BEAM LENS ANTENNA FOR COMMUNICATION SATELLITES

A deployed satellite communication system can become obsolescent due to changing equipment, facilities or requirements of users. This is often due to the inflexibility of the satellite's antennas. A multiple beam antenna has inherent characteristics which allow its radiation pattern to be varied easily and at an electronic rate.

This talk describes a waveguide lens antenna system excited by a variable beam-forming network capable of producing a wide range of radiation patterns varying from a narrow high gain beam of an equivalent paraboloid, to the earth-coverage pattern of wide coverage communication satellite which simultaneously suppresses interfering signals by radiation pattern shaping. An accurate method of analysis, supported by experimental data, is used to derive the minimum directive gain of the antenna system over its field of view. Two methods of producing earth-coverage patterns with prescribed minima and a flexible beam-forming network capable of forming these radiation patterns are discussed.

Dr. Leon J. Ricardi of M.I.T. Lincoln Laboratory has been a leader in the design and development of a wide variety of satellite and large antenna systems and holds a part-time teaching position at Northeastern University. He served as Chairman of the Technical Program Committee for the 1966 IEE AP - S International Symposium.

This work has been sponsored by the Department of Defense.

CHANGE IN NOMINATIONS SAN FRANCISCO SECTION

The February GRID listed on page 5 the nominees for 1975-1976 officers for the three Sections in the proposed reorganization.

For the "new" San Francisco Section, the candidate for PAC Chairman is:

Gerald P. (Gerry) Parsons, Attorney
3000 Ferry Bldg., San Francisco

ENGINEERS-WHAT THEY CAN DO TO AFFECT WORLD FOOD NEEDS

How engineers can and do affect the world's food needs will be the focus of the spring meeting of the Pacific Southwest Section of the American Society of Engineering Education. Drawing on key professionals from state agencies, agriculture, and universities, the one-day program will be of interest to engineers in all disciplines. The program, hosted by University of California Davis, is open to non-members.

Session chairmen are Richard C. Dorf, Dean of the U.C. Davis Division of Extended Learning and chairman of the Pacific Southwest Section of the American Society for Engineering Education, and Zuhair Munir, professor, U.C. Davis department of mechanical engineering and program chairman. John Kamper, Dean of the U.C. Davis College of Engineering will also speak.

Held on Friday, April 11, from 9:00 AM to 5:30 PM, the meeting is scheduled in the Orchard Room of the Mini-center on the U.C. Davis campus.

The program fee is $7.50 and includes lunch and wine tasting. For further information on the program content, contact Professor Zuhair Munir, Mechanical Engineering Department, UCD, Davis, CA 95616. To register for the program contact Ms. Carolyn Norlyn, Conferences and Campus Services, UCD, Davis, CA 95616 (telephone (916) 752-2813).

PERIPHERAL ORIENTED LSI.

The Computer Society meeting for March will feature a presentation on new LSI circuits designed for use with computer peripherals. All interested persons are invited; no membership in the Society or admission fee is required.

Until recently, the glamorous field of Microprocessors have monopolized the resources of semiconductor manufacturers. Krishna Rallapalli of Fairchild will describe three new LSI circuits designed specifically for computer peripheral controllers.

- Cyclic redundancy checker for disc, tape and communication applications.
- High-speed serial/parallel FIFO for peripheral-processor buffering.
- Programmable bit rate generator for clocking asynchronous data communication controllers.

Krishna Rallapalli, presently a Staff Engineer at Fairchild, was with Digital Equipment Corporation as a principal engineer in PDP-11 Engineering. He was also a research officer at the University of Saskatchewan from where he holds a Masters Degree.

See CALENDAR for Program Arrangements

ANNUAL MULTI-TOPIC ENGINEERING SYMPOSIUM

Education Committee of the San Francisco Section will present a one day multi-topic Engineering Symposium to be held on Saturday, May 10th, 1975 at the campus of the San Franicsco State University.

There will be nine sessions, three held concurrently and each will be devoted to selected programs of interest to all IEEE members.

Qualified and noted experts invited from local industries will talk on carefully selected subjects such as principle, concept and application of Microprocessors and Microprogramming; application of computers in design and operation of power, electronics and space projects; source, economy and future of energy; guide in selecting equipment in the power field; safety and environmental aspects of nuclear power generating stations. There will also be topics to cover the latest development, in electronic, instrumentation and communication devices and their application.

A special series of outstanding management films will be presented during the entire program. These films will cover areas such as management by objectives, motivation and productivity, and the effective executive.

In cooperation with the PAC Committee the luncheon speaker will brief all the participants on the new laws effecting the entire engineering profession and the future of the engineers.

MARK THE MAY 10th ON YOUR CALENDAR AND PLAN TO ATTEND THIS OUTSTANDING PROGRAM FIRST EVER TO BE SPONSORED BY OUR SECTION AT LARGE.

Please look for details of the outstanding program in the future issues of the GRID.

For information and suggestions please call Tom McGill of SRI (415) 326-6200 Ext. 2664 or Hadi Monsef of Bechtel Power Corp. (415) 764-3748.

JAPAN ELECTRONICS EXHIBITION

October 1 - 7, 1975

A special tour is being arranged to the Japan Electronics Exhibition for IEEE members and their families. A tour of the Orient also can be arranged. See April GRID for details or call the Section Office (415) 327-6622.

MINICOMPUTER

ONE-DAY SHORT COURSE

April 19, 1975

The San Francisco Section, in cooperation with the IEEE Educational Activities Board, is sponsoring the course, "Mini-Computers: Hardware, Software, and Applications." This proven very popular course will be given by Professor J.D. Schoeffer of the Case Institute of Technology.

The course will be given at the Bold Knight restaurant in Sunnyvale on **Saturday, April 19, 1975 from 9 AM to 4 PM.** Please save this date! Further details will be presented in the April GRID and can be obtained from the Section Office, or from Tom Magill - (415) 326-6200, Ext. 2664.

Don't miss this opportunity!

SCVSS - STUDENT CHAPTERS WHAT DO ENGINEERS REALLY DO?

The Santa Clara Valley Section and the Student Chapters from San Jose State, University of Santa Clara, and Foothill will hold a joint meeting at San Jose State to discuss the engineering profession.

The meeting will consist of an informal discussion between a panel of engineers and the students in the audience. Through this discussion, it is hoped the students will gain greater insight into the engineering profession.

The panel will consist of engineers representing different levels and segments of electrical engineering. Coffee and donuts will be served during the meeting. This will present a good opportunity for students to meet practicing engineers on an informal basis to discuss common problems and goals.

WORKSHOP ON MICROCOMPUTERS ADVANCED ARCHITECTURE AND APPLICATIONS

April 30 - May 2, 1975
Asilomar, California

Call for Participation: The objective of this workshop is to bring together users and manufacturers of LSI microprocessors. Sessions are planned on the Limitations of Current Microprocessors from a System Viewpoint; Technology Constraints, Present and Future; Software Considerations; Unique Future Applications of Microprocessors; General discussion session where topics will be determined by participants.

Persons interested in participating in the microprocessor workshop should have submitted an abstract of a talk for one of the four sessions by February 15, 1975. To permit free discussion, information presented at the workshop will not be published, and will be limited to a small number of active workers in the field. Invitations will be issued by March 15, 1975.

Contact Don Senzig, Hewlett-Packard Laboratories, Helwett-Packard Company, 1501 Page Mill Road, Palo Alto, California 94304.

THE COVER STORY

COMMUNICATIONS ENGINEERING APPLICATIONS FOR THE PHYSICALLY HANDICAPPED

Helping the physically handicapped lead a more normal life can be a very rewarding and gratifying job. Help in the form of better communication, in the broad sense, has been provided over the years with applications and adaptations ranging in sophistication from simple engineering gadetry to the most modern electronic technology.

Two broad categories of such applications will be presented. The first deals with individual custom tailored devices which are developed on a one-of-a-kind basis. The second category deals with special devices developed for use by groups of handicapped people.

Mr. Lou Wyatt is an Engineer in the Special Services Division of Pacific Telephone Company and is also a member of the Executive Board of the Peninsula Council, Telephone Pioneers of America; a group that has contributed greatly in the area of aid to the physically disabled.

LASER INDUCED FUSION

Nobel prize-winning nuclear physicist Robert Hofstadter will speak at a meeting of the Nuclear and Plasma Sciences Society on Tuesday, March 18 about experiments being carried out at KMS Fusion in Ann Arbor, Michigan, on laser induced fusion of deuterium-tritium mixtures in glass microshperes. The results indicate high values of compression, and neutron yields consistent with a thermonuclear origin. The laser, optical system, pellets and diagnostic system will be discussed, together with future research plans.

The talk will be given at 8:30 PM at the International Inn Restaurant, 326 South Airport Blvd. (San Francisco Airport). It will be preceded by cocktails at 6:30 PM and dinner (roast chicken) at 7:00 PM, price $7.00 (tax, tip, and gratuity included). If you wish to attend the dinner, please call Mrs. Cynthia Whiteside at (415) 843-2740, Ext. 341 before March 15, to make a reservation.

TUTORIAL LECTURE ON ERGODIC AND INFORMATION THEORY

In the past, a flow of ideas has taken place from information theory to ergodic theory. Now it appears that a significant flow is also possible in the reverse direction. In particular, recent advances in ergodic theory have allowed greatly simplified proofs of certain source coding theorems. This talk will discuss what ergodic theory can and cannot offer information theorists.

Professor Ornstein is a professor of mathmatics at Stanford University. He was awarded the AMS's prestigious Bocher Award in 1974 for contributions to ergodic theory.

1975 INTERNATIONAL MICROWAVE SYMPOSIUM

The theme?
"Microwaves in Service to Man"

Palo Alto - May 12-14, 1975

More than 120 papers from North and South America, Europe, and Asia will be presented at Rickey's Hyatt House. Exhibits will be located at the entrance to the technical sessions.

Advance registration fee (members) is $30. Cut off date for advance registration is April 21, 1975. For further information about the conference or exhibits contact Chairman E. Wesley Matthews, Philco-Ford Corporation, 3939 Fabian Way, Palo Alto, California 94303, Phone: 326-4350, Ext. 442.

The following sessions have been organized. Microwaves in Earth Sensing, Microwaves in Communication, Microwave Filters and Components, Microwave Generation and Amplification, Microwave Measurements, Microwave Intergrated Circuits, Microwave Diode Control Devices, Computer Aided Microwave Practices, Millimeter Wave Systems, Microwave Ferrite Control Devices, Microwaves in Medicine, Noise in Microwave Transmission Applications of Gunn and IMPATT Diodes, Reduction and Measurement of Noise, Microwaves in Transportation and Navigation and Microwave Acoustics and Delay Lines. There will be an invited Japanese session on Millimeter Wave Communication in Japan. A special panel discussion on Professional Action, conducted by Leo Young, will be held Monday evening, May 12, 1975.

This space reserved for the

INDUSTRY
APPLICATION
SOCIETY

FEED-FORWARD S-BAND AMPLIFIER SYSTEM

Chi-Chia Hsieh of Farinon Electric will speak at the Microwave Theory and Techniques Chapter March 20th meeting on the design of a feed-forward S-Band amplifier system. The system has 58 dB gain at 2.2 GHz, with 1.25 watt output power. Intermodulation distortion products are at least 50 dB down from the carrier level. Computer optimization was used throughout the design of the main and auxiliary amplifiers to assure maximum gain and highest 1 dB gain compression point. Couplers, delay lines and PIN diode attenuators were realized in microstrip MIC form to minimize the circuit size and to achieve thermal stability. Potential applications will be discussed.

Mr. Hsieh received his BSEE from National Taiwan University and the MSEE degree from the University of Santa Clara. He developed GaAs FET amplifiers at Fairchild Microwave and Optoelectronics Division in 1971 and 1972. Since 1972, he has been associated with the thin-film hybrid circuit development activity of Farinon Electric in San Carlos. His main responsibilities are the development of integrated subsystems and the application of computer optimization in microwave circuit design.

SUMMER CURRICULUM IN COMPUTER SCIENCE U C EXTENSION - SANTA CRUZ

Fifth Annual Summer Curriculum in Computer Science, University of California, Santa Cruz; intensive one-and-two week short-courses, June 30 - August 22, 1975, costs vary. Contact: Dr. William McKeeman or Joleen Kelsey, Univeristy Extension, Santa Cruz, CA 95064; (408) 429-2821.

See CALENDAR for Program Arrangements

POWER ENGINNERIGN SOCIETY 1975 SUMMER MEETING

San Francisco - July 20-25
San Francisco Hilton Hotel
The theme?
"Tomorrow's Energy-Today's Concern"

General Chairman Chuck (C.H.) Sedam announces that plans are well under way for a varied and stimulating week of technical sessions, inspection trips, luncheons and special events.

The aim is to provide a well-rounded program with something of interest to all participants. Special emphasis is being given to the latest developments in the specialties that are vital to all professional levels in today's power system technology. An estimated 130-140 technical papers will be presented in parallel sessions throughout the week. A number of papers by foreign authors will be included.

Because of the wide diversification of equipment requirements in today's power systems, this meeting will be of interest to other IEEE Group/Society members and guests.

OAKLAND EAST BAY SUBSECTION HOW CAN ELECTRICAL ENGINEERING BECOME A WORTHWHILE PROFESSION

William Raukko, chairman of the Professional Activities Committee (PAC) and a panel of PAC members will discuss the problems that face the engineering profession, and some of the action that is underway in IEEE to alleviate them. The subjects of ethical practices, interface with the state government, and pensions will receive particular emphasis from the panel. There will be ample time for questions and commentary from the floor, as the PAC is particularly anxious to maintain a dialogue with the members and to receive their inputs.

SPEECH RESIDUAL ENCODING BY ADAPTIVE DELTA MODULATION

An adaptive delta modulator (ADM) that employs both syllabic and instantaneous companding schemes will be the subject for the Communications Society's March meeting. Dr. D. Thomas Magill of SRI will show how this hybrid companding ADM has been used as an encoder of the speech residual in an LPC vocoder. The ADM may also be applied directly to speech signals. The ADM system and the LPC vocoder will be described and demonstration tapes played.

Dr. Magill is Program Manager for speech Processing in the Telecommunications Sciences Center of Stanford Research Institute and is actively engaged in speech processing and voice digitization research.

LOW TEMPERATURE ELECTRIC POWER GENERATION AND TRANSMISSION

The Power Engineering Society's March 11 noon meeting will feature a presentation on recent developments in the field of low temperature electric power generation and transmission. The presentation will emphasize worldwide research in the area of low temperature, low loss systems which has been expanded due to the problems of increasing power demands and energy shortages.

The speaker will highlight some of the programs being undertaken throughout the world concerned with superconducting generation and transmission as well as resistive cryogenic power transmission. A comparison will be made between conventional static/forced cooled oil-paper insulator cable systems and prototype cryogenic cables.

The presentation will be made by Dr. Mario Rabinowitz, a graduate of Washington State University, who has been Manager of Superconducting and Cryogenic Projects at EPRI since 1974. Prior to this he was a Research Physicist at the Stanford Linear Accelerator Center. Dr. Rabinowitz has published over 25 scientific papers and has many patents credited to him in the fields of science and engineering.

THE SOCIO ECONOMIC ASPECTS OF OUR PROFESSION

The presentation will summarize the aspects of IEEE's professional thrust from the 1972 Charter change mandate of the membership up to the present.

1975 programs and 1974 accomplishments of USAC committees will be enumerated.

Know where IEEE stands TODAY on: Employment Practices, Government Relations, Manpower Planning, Pensions, Surveys, Member Employment, Career Development.

Carleton A. Bayless, Director, Region 6, IEEE, is the Division Engineer - Systems Design, for Pacific Telephone Company.

MINICOMPUTER SHORT COURSE
See page 5

POWER EDUCATIONAL COURSE

Electrical Design

A course on Electrical Design of Industrial and Power Plant Distribution systems will be held on Wednesdays, April 2 through June 4, 1975 at 6:00 to 8:00 PM in the PG&E Bldg., 245 Market St., first floor, Conference Room B, San Francisco. Tentative lecture topics are: Industrial Distribution Systems, Power Plant Distribution Systems, Medium Voltage Switchgear, Transformers, Low Voltage Switchgear, Motor Control Centers, Electric Motors, Lighting Systems, Grounding Systems, and Codes and Regulations. Lecturers have been invited from Bechtel, PG&E, GE, Westinghouse, etc. Mail applications to Mr. Emery Fabri, Bechtel Corp., 50 Beale St., S.F. 94119, (415) 764-9488 or Mr. Richard Webster, PG&E Co., (415) 781-4211, Ext. 3143. Make checks payable to S.F. IEEE Power Engineering Society.

APPLICATION

- -

Name _____

Address _____

_____

Phone: Bus _____ Home _____

Company _____

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

SILICON ON SAPPHIRE TECHNOLOGY

The Reliability Group will hear Dr. O.D. (Bud) Trapp of Technology Associates analyze the viability of Silicon on Sapphire (SOS) as a workable semiconductor process technology. The present state of the art will be discussed along with materials, design, and reliability consideration. The pros and cons of single epi, silicon gate, aluminum gate, and ion implantation processes and fabrication techniques will be discussed also.

Dr. Trapp has authored the first major report on the SOS semiconductor industry. He is the founder of Technology Associates, a private consulting firm which specializes in semiconductor technology. He had prior experience with Fairchild Semiconductor, Memorex, and Westinghouse. He has a Ph.D. in Physical Chemistry from Iowa State University.

The talk will be given in Physics 101, Stanford University, at 8:00 PM, on Wednesday, March 26. Cocktails and dinner will be held beforehand at Stickney's Restaurant, Town & Country Village, Embarcadero & El Camino Real, Palo Alto, at 6:00 PM. For reservations call IEEE Section office 327-6622 by noon, Wednesday, March 26.

SAN JOSE STATE UNIVERSITY TEACHING OPPORTUNITIES

The Electrical Engineering Department at San Jose State University will have three assistant professor level positions available for Fall Semester 1975 according to Professor E.P. Anderson, Department Chairman. All interested persons are invited to apply. Qualifications include an appropriate Ph.D. or equivalent with demonstrated teaching abilities. Professional engineering experience is desirable. Responsibilities include teaching graduate and undergraduate courses and developing and maintaining laboratories. Preferred areas of specialization include (1) Computer organization, software design, compiler systems, operating systems and microprogramming; (2) Power systems including generation, transmission and related topics; (3) Electronics systems including solid state devices, network design and related topics. Send detailed letter of interest with a complete resume by March 15, 1975 to Department of Electrical Engineering, San Jose State University, San Jose, California 95192. An equal opportunity/affirmative action employer.

RECENT DEVELOPMENTS IN WATCH DISPLAYS AND ELECTRONICS

The Electron Device Group of the San Francisco Section will feature a presentation of recent developments in watch electronics and displays at its March meeting.

Current integrated circuit technologies will be described. A comparison of display technologies such as light emitting diodes and liquid crystal displays will be presented.

The speakers will be Dave Evans of Hewlett-Packard and H.T. Chua of Microma.

MINICOMPUTER SHORT COURSE
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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 at one time. 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.

PROFESSOR CHUA WINS AWARD

Leon O. Chua, Professor of Electrical Engineering and Computer Sciences has received the 1974 Frederick Emmons Terman Award of the American Society of Engineering Education Electrical Engineering Division. The award is bestowed annually upon an outstanding young electrical engineering educator in recognition of his contributions to the profession. Sponsored by the Hewlett-Packard Company, the award consists of $1000, a gold medal, and a presentation scroll.

Professor Chua was awarded the honor "in recognition of his enthusiastic, innovative and excellent teaching of both undergraduate and graduate students; for his productive program of research in the field of nonlinear electric circuits which has led to an extensive list of outstanding publications and a number of patents; for his contributions to education in nonlinear network theory through the publication of an outstanding textbook which has received excellent critical review; and for his dedicated and highly effective service in the affairs of a variety of committees and publications of his professional societies."

Professor Chua was elected to the Fellow grade in IEEE in 1974.

ENGINEERING MANAGEMENT AND ELECTROMAGNETIC COMPATIBILITY EMC/AES/EM JOINT MEETING

Fred J. Nichols, President of Lectro Magnetics, Inc. and the West Coast chapters coordinator of IEEE EMC Group, will present the role of the engineering management in the Electromagnetic Compatibility field. Unusual examples from his long experiences in the fields of management and EMC will be the highlights of the evening. The coordination requirements between the system developers and the EMC planners will be discussed. The topic will illustrate why interdepartmental functions are necessary and how the proper management understanding and support will insure success of the program.