

EDITOR'S PROFILE of this issue

from a historical perspective ...

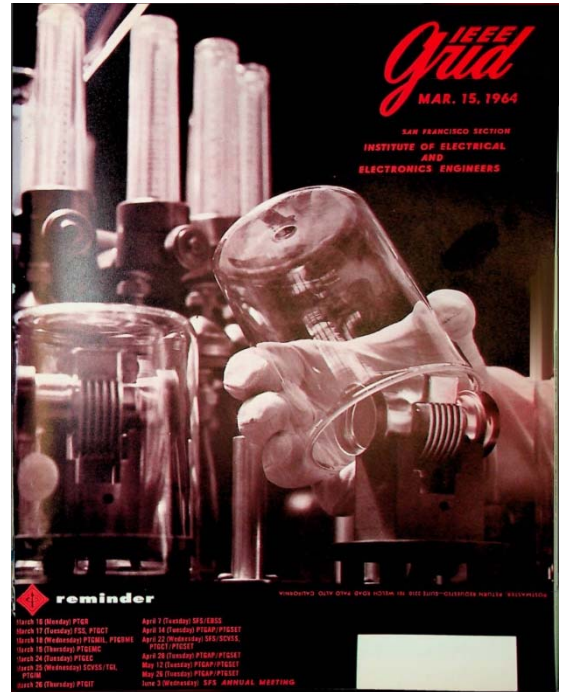
with Paul Wesling, SF Bay Area Council GRID editor (2004-2014)

March, 1964 (mid-month):

Cover: Shown is the sealing process for small klystrons in the clean room at Varian Associates, world leader in small klystron production. Today, radiation therapy for cancer uses machines that have a Varian klystron in them.

Page 2: The IEEE's 1964 Morris Liebmann Memorial Prize is awarded to Stanford's Arthur Schawlow for the co-invention of the laser. It comes with a US\$1,500 prize, and is awarded at the IEEE's annual convention in NYC.

Page 4: The Santa Clara Valley Subsection hosts a tour of the newly opened General Motors assembly plant in Fremont. Sitting on 34 acres, it can turn out 1,000 vehicles a day. The integrated electrical distribution system will be explained. Today, this plant turns out Tesla electric vehicles.



Archive of available SF Bay Area GRID Magazines is at this location:

[https://ethw.org/IEEE San Francisco Bay Area Council History](https://ethw.org/IEEE_San_Francisco_Bay_Area_Council_History)

At time of scanning, the bound volumes are held by Paul Wesling.

July, 2021

Contact p.wesling@ieee.org

IEEE *Grid*

MAR. 15, 1964

SAN FRANCISCO SECTION
INSTITUTE OF ELECTRICAL
AND
ELECTRONICS ENGINEERS



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reminder

- | | |
|--|---|
| March 16 (Monday) PTGR | April 7 (Tuesday) SFS/EBSS |
| March 17 (Tuesday) FSS, PTGCT | April 14 (Tuesday) PTGAP/PTGSET |
| March 18 (Wednesday) PTGMIL, PTGBME | April 22 (Wednesday) SFS/SCVSS,
PTGCT/PTGSET |
| March 19 (Thursday) PTGEMC | April 28 (Tuesday) PTGAP/PTGSET |
| March 24 (Tuesday) PTGEC | May 12 (Tuesday) PTGAP/PTGSET |
| March 25 (Wednesday) SCVSS/TGI,
PTGIM | May 26 (Tuesday) PTGAP/PTGSET |
| March 26 (Thursday) PTGIT | June 3 (Wednesday) SFS ANNUAL MEETING |

UNDER

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- PRECISION WELDERS.

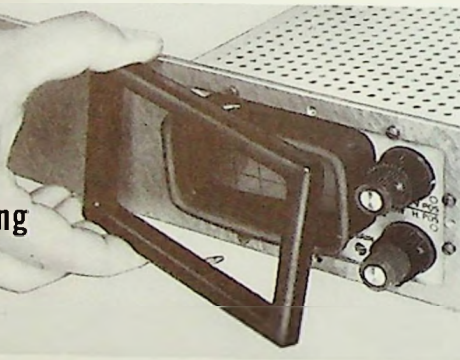
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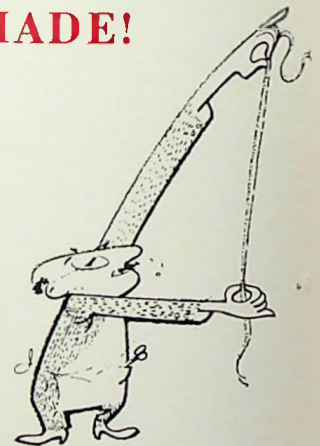


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DONALD B. HARRIS

The San Francisco Section was saddened by the February 17 death of Donald B. Harris, long a leader in the activities of IRE, IEEE, the San Francisco Section, and WESCON.

Harris, 63, nationally prominent electronics engineer and accomplished musician, died at Palo Alto-Stanford Hospital after a brief illness. He was senior executive engineer at Stanford Research Institute. Previously he had been manager of electron tube research at the General Electric Microwave Laboratory in Palo Alto, and associate director of the Electronics Research Laboratory at Stanford.

A graduate of Yale, he began his electronics career in his native Minneapolis in 1923 with the Cuttington and Washington Radio Corporation, designers of some of the pioneer commercial radio transmitters in the United States. From 1924 to 1947—with interruptions only for wartime service—he was associated with the Northwestern Bell Telephone Company in positions of progressive responsibility. During wartime leave from Northwestern Bell, he was responsible for administering the contracts under which the Radio Research



Donald B. Harris

Laboratory at Harvard University was operated.

During his career, Harris filed for 18 patents on various electronic devices and authored 20 publications in professional journals or textbooks, as well as numerous technical reports. He was a Fellow of the IEEE and served as director of the San Francisco Section from 1953 to 1956; chairman of WESCON in 1957; chairman of the San Francisco Sections Awards Committee, 1957-60; a member of the National Awards Committee, 1959-63 (chairman, 1962); member of the Board of Editors, or the Editorial Reviewers Committee, 1950-61; and co-chairman of the Awards Committee of the Section, 1963.

section news

IEEE HONORS SCHAWLOW

One of the highest technical awards of IEEE, the world's largest scientific-engineering society, will go to the Stanford co-inventor of science's newest glamor item, the laser.

The 1964 Morris N. Liebmann Memorial Prize will be awarded to Stanford Physics Prof. Arthur L. Schawlow, according to an announcement by Dr. William A. Edson, chairman of the San Francisco Section and president of Electromagnetic Technology, Palo Alto.

The presentation of the certificate and \$1,500 prize will be made to Prof. Schawlow March 24 at a banquet in New York during the IEEE's annual convention. The accompanying citation will note "his pioneering and continuing contributions in the field of optical masers (lasers)."

It will be the fourth time in the past decade that a member of the San Francisco Section has won the prize, Dr. Edson pointed out. Previous winners were Stanford Prof. O. G. Villard, Jr., 1957; Stanford Prof. Edward L. Ginzton, 1958; and U.C.-Berkeley Prof. Victor H. Rumsey, 1962.

Prof. Schawlow first suggested the possibility of devising a laser in a 1958 scientific paper co-authored by Pro-

vost Charles H. Townes of MIT, inventor of the original radio maser. On the basis of the information, others have been able to make lasers from rubies, gases, and various solids.

The laser generates "coherent" light of a single frequency and wave length in a fine, non-spreading beam thousands of times more intense than sunlight. Ordinary light is made up of many frequencies and wave lengths, all interfering and interacting, causing it to spread rapidly and lose intensity.

Though development has just begun, the laser's fabulous potentials have caused widespread excitement in science and industry. A focused laser beam can burn through any material, including diamonds. Its use is being investigated for spot-welding of tissues in surgery, as a carrier beam for multitudes of radio and television signals, and even as a potential "death-ray" weapon.

Previous awards to Prof. Schawlow for his laser work include the Thomas Young Medal and Prize of 50 guineas from London's Institute of Physics and the Physical Society, and the Stuart Ballantine Medal of the Franklin Institute. Recently he was also named a Fellow of the IEEE.



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contents

Section News—Donald B. Harris	2
Section News—Honor for Arthur L. Schawlow	2
Meeting Calendar	4, 5, 6
Meetings Ahead (SCVSS/TGI, PTGEMC, PTGEC, PTGIM)	4, 5
Section News—New Bylaws, Bulletin Board Service	6
International News—New York IEEE International Convention	7
Region 6 News—Salt Lake City Conference	7

cover

Mica window sealing for small reflex klystrons proceeds in the clean room at Varian Associates, Palo Alto, which leads the world in small klystron production. Shown is the VA 220, invented by Cliff Gardner, assist-

ant manager of the Palo Alto tube division, who was recently appointed product line engineering manager for small klystrons. Photograph courtesy of Varian Associates.

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*meeting ahead***JOINT SCVSS/TGI FIELD TRIP**

Plans for the March 25 joint field trip of the Santa Clara Valley Subsection and the Industrial Technical Group have been announced by Art Wells, TGI chairman.

Toured will be the General Motors assembly plant at Nimitz Freeway and the Landing Road/Cushing Road interchange in Fremont. Members and guests should meet at 6:00 p.m. in the main lobby. Dinner will be available in the plant cafeteria, following which the visitors will take a guided plant tour in small groups.

This new assembly plant started production May 1963 and presently has production capabilities of 1,000 automobiles and trucks per day. The buildings occupy 34 acres and have a connected electrical load of 36,000 KVA. Of interest will be the integrated electrical system, the latest automatic equipment, plus an opportunity to witness the latest production techniques for automobile assembly.

*meeting ahead***AF INTERFERENCE PROBLEMS**

RADC's role in solving future Air Force interference problems will be the subject of Robert Powers, chief, interference reduction section, vulnerability reduction branch of the Rome Air Development Center, on March 19. Powers will meet with the PTC on Electromagnetic Compatibility chapter at the Lockheed auditorium in Palo Alto.

Rome Air Development Center has a very energetic applied research program in interference, in an effort to solve future Air Force interference problems. The program involves two distinct areas of solution, "fire fighting" and "fire prevention."

The former of these is concerned with band-aid or retro-fit packages in the way of filters, blankers, R.F. switches, etc., to take care of the interference problems which arise after the C-E equipments become operational. The latter program is being fulfilled by an applied research program to develop (1) interference analysis and prediction techniques, (2) interference specifications and measurement techniques, and (3) interference suppression techniques.

These programs will be discussed in general terms without revealing any specific programs. Mention is made of the interference working groups which have been established to analyze and solve all of the Air Force interference programs.

SAN FRANCISCO SECTION

8:00 P.M. • Tuesday, April 7

(Joint with East Bay Subsection—see below)

SAN FRANCISCO SECTION

7:00 P.M. • Wednesday, April 22

(Joint with Santa Clara Valley Subsection—see below)

Pioneers of electronic and electrical engineering (a panel discussion on early engineering by the pioneers themselves)

Ralph M. Heintz (first air-ground radio), Leonard F. Fuller (early carrier systems and telegraph), Charles A. Powell, past president, AIEE 1945 (early utility systems), Donald I. Cone (early telephone systems power), Joseph S. Carroll (early power and corona studies), Alert M. Opsahl (first oscillograph in USA and lightning studies), and Howard L. Melvin (early power systems)

Place: Lamplighter Lodge, 820 E. El Camino Real, Sunnyvale

Social hour: 6:00 P.M.

Dinner: 7:00 P.M., \$3.50 including tax and tip

Reservations: Palo Alto and north—321-1332; San Jose and Sunnyvale—735-2226

Reservations close Monday, April 20, at 3:00 P.M.

SAN FRANCISCO SECTION

6:00 P.M. • Wednesday, June 3

Annual meeting honoring 1964 Fellows; installation of 1964-65 Section Officers; adoption of Section Bylaws

Principal Speaker: E. Finley Carter, senior management counselor, and former president, Stanford Research Institute

Social Hour: 6:00 P.M. Dinner: 7:00 P.M.

Reservations: Section Office, 321-1332. Subject, place, and price to be announced

Tables may be reserved for Subsections, PTC's, Committees, and Companies

EAST BAY SUBSECTION

8:00 P.M. • Tuesday, April 7

(Joint with San Francisco Section—see above)

Numerical simulation of the earth's atmosphere

Dr. Cecil E. Leigh, head, H Division, Lawrence Radiation Laboratory, Livermore
Place: Colonial Room, Edgewater Inn, 455 Hegenberger Road, Oakland (west of Nimitz Freeway at Oakland Airport turnoff)

Dinner: 6:30 P.M. (same place): Roast chicken \$3.65 or cross rib roast \$4.35

Reservations: West Bay: S.F. Office, 321-1332; East Bay: Winnie Veeder, 843-2740, Ext. 5434; Livermore: Pat Wilson, 447-5100, Ext. 2315, by April 3

FRESNO SUBSECTION

8:00 P.M. • Tuesday, March 17

Engineering at Fresno State College

Thomas H. Evans, head, engineering division, Fresno State College

Place: 10th floor, PG&E Building, Fresno

Dinner for officers and speaker

SANTA CLARA VALLEY SUBSECTION

6:00 P.M. • Wednesday, March 25

(Joint with Technical Group Industrial, see below)

Inspection trip of G.M. Buick, Oldsmobile, and Pontiac assembly plant, Fremont

Dinner: 6:00 P.M., General Motors cafeteria, Fremont

Information: Art Wells, JU 6-4074

SANTA CLARA VALLEY SUBSECTION

7:00 P.M. • Wednesday, April 22

(Joint with San Francisco Section—see above)

TECHNICAL GROUP**Industrial**

6:00 P.M. • Wednesday, March 25

(Joint with Santa Clara Valley Subsection, see above)

MEETING CALENDAR

PROFESSIONAL TECHNICAL GROUP CHAPTERS

Antennas & Propagation

8:15 P.M. • Tuesday, April 14

(Four-part Tutorial Lecture Series: "Ground Portion of the Earth-Space Communications System." Joint with PTCSET, see below)

Lecture No. 1: I.O.S. and S.C.F.

French Harris and Jim Westcott, Philco WDL

Place: Lockheed Auditorium, Bldg. 202, Palo Alto

Dinner: 6:15 P.M., El Camino Bowl, 2025 El Camino Real, Mountain View

Reservations: Robert H. Light, 968-6211, Ext. 2748, 2755, by noon April 13

Antennas & Propagation

8:15 P.M. • Tuesday, April 28

Lecture No. 2: NASA Goddard tracking net

Paul Lantz, Goddard Space Flight Center, Greenville, Md.

Place: Lockheed Auditorium, Bldg. 202, Palo Alto

Dinner: 6:15 P.M., El Camino Bowl, 2025 El Camino Real, Mountain View

Reservations: Robert H. Light, 968-6211, Ext. 2748, 2755, by noon April 27

Antennas & Propagation

8:15 P.M. • Tuesday, May 12

Lecture No. 3: D.S.I.F.

Dr. N. A. Renzetti, manager, deep space instrumentation facility, Jet Propulsion Lab at Cal Tech

Place: Lockheed Auditorium, Bldg. 202, Palo Alto

Dinner: 6:15 P.M., El Camino Bowl, 2025 El Camino Real, Mountain View

Reservations: Robert H. Light, 968-6211, Ext. 2748, 2755, by noon May 11

Antennas & Propagation

8:15 P.M. • Tuesday, May 26

Lecture No. 4: to be announced

Biomedical

8:00 P.M. • Wednesday, March 18

An integrated electronic system for physiological studies of the gastrointestinal tract

Thomas S. Nelson, M.D., assistant professor of surgery, Stanford

Place: Room M-112, Stanford Medical School, Stanford, Calif.

Dinner: 6:15 P.M., Red Cottage Restaurant, 1706 El Camino Real, Menlo Park

Reservations: Con Rader, 326-1970, Ext. 328, by March 17

Circuit Theory

8:00 P.M. • Tuesday, March 17

Recent developments in applications of the computer to network theory

Prof. D. Calahan, visiting assistant professor, University of California, Berkeley

Place: Ampex Cafeteria, 401 Broadway, Redwood City

Dinner: 6:30 P.M., Villa D'Este, 3401 El Camino Real, Atherton

Reservations: Jan Mulvihill, 367-3169 or 367-3168

Circuit Theory

8:00 P.M. • Wednesday, April 22

(Joint with PTGMITT—see below)

Optical network synthesis using birefringent crystals

S. E. Harris, W. W. Hansen Labs., Stanford University

Place: Room PH-100, Stanford University

Dinner: 6:30 P.M., Rick's Swiss Chalet, 4085 El Camino Way, Palo Alto

Reservations: Pat Peters, 326-6200, Ext. 2414, by April 20

Electromagnetic Compatibility

8:00 P.M. • Thursday, March 19

RADC's role in solving future Air Force interference problems

Robert Powers, chief, interference reduction section, vulnerability reduction branch, Rome Air Development Center, USAF

Place: LMSC Auditorium, Bldg. 202, 3251 Hanover St., Palo Alto

Dinner: 6:00 P.M., Rick's Swiss Chalet, 4085 El Camino Way, Palo Alto

Reservations: Glenn D. Gillett, RE 9-4321, Ext. 24834 or 23268, by March 18

(Continued on page 6)

meeting ahead

IM FOR NUCLEAR EXPLOSIVES

Marcus McCraven and Gordon Longerbeam of the Lawrence Radiation Laboratory, Livermore, will be guest speakers at the March 25 meeting of the PTC chapter on Instrumentation and Measurement. They will discuss system instrumentation for nuclear measurements.

Instrumentation for nuclear measurements relating to nuclear explosives for peaceful applications and for national defense requires a system with an over-all response from a few hundred cycles to several thousand megacycles. Due to the single transient nature of the information, a great deal of very specialized equipment has been developed at Livermore and by industry for this system. The development and characteristics of this equipment, including fast discriminators and pulse generators, traveling wave, and other fast oscilloscopes will be described.

The assimilation of this equipment into an over-all system is also covered, together with a discussion of the many problems from other disciplines facing the system engineer. The calibration and calculation of system response and bandpass will be summarized. Finally, future development projects and unsolved problems will be presented.

meeting ahead

INTEGRATED CIRCUITS

It is a common opinion expressed by many in the electronics community that integrated circuits are to enjoy a growth similar to that experienced by the transistor. It is also expected that these devices will find wide usage in the future digital computer. The use of these tiny, prepackaged circuits necessitates a new point of view in design as well as production engineers. The speaker of the March PTGEC meeting addresses himself to this problem.

Rex Rice, manager of digital systems research at Fairchild Semiconductor, will give a talk before the PTGEC entitled, "The Impact of Integrated Circuits on System Design." The talk will present a systematic procedure for digital system realization—using integrated circuits—from logic design to production. He will also discuss some of the general implications to the computer industry as a result of the integrated circuit.

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MEETING CALENDAR

Electronic Computers

8:00 P.M. • Tuesday, March 24

The impact of integrated circuits on system design

Rex Rice, manager, digital systems research, Fairchild Semiconductor
Place: General Electric Computer Lab, 310 De Guigne Drive, Sunnyvale
Dinner: 6:30 P.M., Old Plantation, El Camino and Bernardo, Sunnyvale
Reservations: none required

Information Theory

8:00 P.M. • Thursday, March 26

Effect of sequential decision feedback on communication over the Gaussian Channel

Prof. Andrew J. Viterbi, Dept. of Engineering, UCLA
Place: Stanford Research Institute, Bldg. 1, 333 Ravenswood Ave., Menlo Park
Dinner: 6:00 P.M., Villa d'Este, 3401 El Camino Real, Atherton
Reservations: Mrs. Kelly, 326-6200, Ext. 2945, by March 25

Instrumentation and Measurement

8:15 P.M. • Wednesday, March 25

Instrumentation for nuclear measurements—a detailed discussion of the instrumentation for measurements relating to nuclear explosives

Marcus McCraven and Gordon Longerbeam, Lawrence Radiation Laboratory, Livermore
Place: Hewlett-Packard Auditorium, 1501 Page Mill Road, Palo Alto
Dinner: 6:00 P.M., Dinah's Shack
Reservations and information: Mrs. Renda Blackler, 948-0571

Microwave Theory and Techniques

8:00 P.M. • Wednesday, April 22

(Joint with PTGCT—see above)

Military Electronics

8:00 P.M. • Wednesday, March 18

Overseas electronics—an opportunity

S. V. Hart, director, Electronic Engineers International
Place: Lockheed Auditorium, Bldg. 202, Palo Alto
Dinner: 6:30 P.M., Rick's Swiss Chalet, 4085 El Camino Way, Palo Alto
Reservations: Victor Courad, 326-4000, Ext. 2212 by March 17

Reliability

8:00 P.M. • Monday, March 16

Action to attain reliability in Air Force space systems

Col. James R. Golden, Space Systems Division, Air Force Command Systems
Place: Room 100, Physics Lecture Hall, Stanford University
Dinner: 6:30 P.M., Ed's Chuck Wagon, El Camino Real, Mountain View
Reservations: Tom King, 739-4321, Ext. 24211, by March 16

Space Electronics & Telemetry

8:15 P.M. • Tuesday, April 14, 18
May 12, 26

(Joint with PTGAP, see above)

section news

PROPOSED BY-LAWS READY

Proposed by-laws for the merged San Francisco Section of IEEE have been completed under the co-chairmanship of Victor Kaste and Peter Lacy, approved by the Operating Committee, and are now available.

bulletin board notices

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international news

NEW YORK SHOW MARCH 23-26

The 1964 IEEE International Convention will be held from March 23 through 26 at the New York Hilton Hotel and New York Coliseum in New York City. Encompassing the full scope of IEEE technical activities for the first time, the convention features a 20 percent increase in number of technical papers as well as about the same increase in number of exhibitors. This year's convention theme is "A Glimpse of the Future."

The world's largest technical meeting and exhibition is expected to draw an attendance of more than 75,000 engineers and scientists from 40 countries. Convention headquarters will be in a new location, the recently completed New York Hilton Hotel, situated a convenient six blocks from the Coliseum.

region 6 news

SALT LAKE CONFERENCE

The dates of April 29 through May 1 have been set for the annual conference and exhibit of the IEEE Sixth Region, according to Darrel J. Monson, chairman. Monson is head of the electrical engineering department at Brigham Young University. Over fifty companies have signed up for exhibit space, to be located in the new Utah Motel convention center.

One of the most complete technical programs ever undertaken at a Sixth Region Conference is being organized by Clayton Clark, chairman, of Utah State University. The program will include a full complement of papers on current electronics work as well as several sessions on power-oriented subjects. The former Pacific General Meeting of the AIEE is being combined with the Sixth Region Conference, and the program of papers formerly presented in that meeting will be a part of the Salt Lake City schedule.

A series of papers under the session title "New Concepts in Power" is scheduled, with W. J. Dowis of General Electric Co., Henry Oman of Boeing Company, and William T. Reid of Battelle Memorial Institute leading the discussions.

Heading the first-day sessions will be Governor George D. Clyde of Utah, and Dr. Clarence H. Linder, president of IEEE.

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Hewlett-Packard	1
National Press	Cover 2
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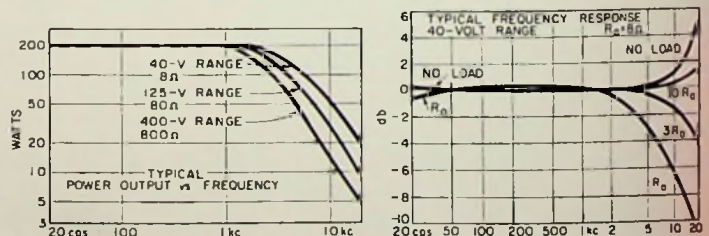
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