

The 1977 Microwave Symposium

DAVID RUBIN, MEMBER, IEEE, AND GERALD SCHAFFNER, MEMBER, IEEE

AFTER three years of planning, working, and worrying, it appears that the 1977 MTT-S Symposium came off without a hitch.

Our special thanks go to the hundreds of smokers at the technical sessions who went along with our temporary restraining order. Our spies didn't detect a single individual lighting up in any of the meeting rooms. Thank heavens we didn't have to carry out "PLAN A," much less the dreaded "OPERATION FIRE EATER."

Attendance at the technical sessions was approximately 810, with 300 more signing up for exhibits only. The previous Symposium record attendance was 752 at the 1968 Boston meeting. Our banquet attendance was 342. Unfortunately, we had to refuse late requests for banquet tickets due to the limited capacity of the Sheraton Inn banquet rooms.

Our Banquet Speaker, Dr. Harold Puthoff, of the Stanford Research Institute, provided the most thought provoking and controversial talk. The banquet, scheduled for 7 to 9:30 P.M., lasted until almost midnight. The subject of psychic research hit a responsive chord in both the skeptics and nonskeptics alike. If any of you have tried the experiments suggested by Dr. Puthoff, we would be most interested in your results. Please write to D. Rubin, Code 8211, NOSC, San Diego, CA 92152. The information will be passed on to Dr. Puthoff.

The first MTT-S professionally managed exhibition, so beautifully handled by Howard Ellowitz of *Microwave Journal*, provided the perfect respite at break time during the technical sessions. The Local Steering Committee, which had absolutely nothing to do with the planning of the exhibition, would like to thank him, publicly, for doing such a fine job.

The attendance of wives at our free continental breakfast was about 6 dB higher than we first anticipated (about 150 showed up). Many families participated in the zoo trip (in which they saw not only the world's largest animal collection, but also the sun), the La Jolla tour, and especially, the evening cruise around San Diego Bay. We had originally rented one boat for the Harbor Excursion, ended up with three (and would have hired another if it were available). Over 350 attendees, wives, and children cruised our Bay that night. The *Microwave Journal* and the Steering Committee provided the free champagne.

The workshops, originally intended for the benefit of a few interested individuals, attracted a great many attendees, and reports indicate that they were indeed worthwhile.

Financially, the meeting was quite successful. The San Diego Convention Bureau provided the secretaries at registration; three of the four projectionists were microwave engineers from NOSC (formerly NELC), who volunteered their services. About \$30 000 will be deposited in the MTT



Dr. Harold Puthoff, Guest Speaker.



President MTT-S, Larry Whicker.

Society's coffers. This should help the TRANSACTIONS from becoming too thin.

For future reference, the people of the Sheraton, from the Convention Coordinator down, were extremely helpful, and certainly did their jobs well.

Lastly, we would like to thank those individuals who suggested that the annual Symposium be held every year in San Diego ... on second thought, NO THANKS!



Head Table. (left to right): Dr. and Mrs. Gerald Schaffner, Dr. Hal Puthoff, Mr. and Mrs. David Rubin, Dr. and Mrs. John Whinnery.



Scenes from the Banquet.

TECHNICAL SESSIONS

The technical program was planned and organized by the 57 member nationwide Technical Program Committee and the four local committeemen. The result was one of the most extensive programs ever, with a total of 152 papers presented during 24 sessions. Evening sessions were purposely avoided to allow the attendees to enjoy San Diego.

A total of 252 papers was submitted for consideration which meant almost 100 fine papers had to be rejected. The final selection was made during a strenuous February meeting of the Program Committee. In the selection a special effort was made for fairness. Names of authors were removed when sent out for review so that this initial submittal had to sell itself.

The Symposium theme of "Accent on Applications" brought out many concepts which should prove quite useful to the practicing microwave engineer.

An outline of the technical program by session is shown as follows.

Tuesday, June 21

- Session A1:* Solid State Sources—chaired by B. Fank and organized by A. Rosen.
- Session B1:* Six Port Network Analysis—chaired and organized by S. Adam.
- Session C1:* A Panel Discussion on Multifunction Microwave Modules—moderated by B. Spielman.
- Session D1:* Review of Fiber and Integrated Optics—chaired by H. Taylor and organized by D. Anderson.
- Session A2:* Diode Frequency Converters—chaired by J. Kuno and organized by A. Rosen.
- Session B2:* Microwave Measurements—chaired and organized by E. Komarek.
- Session C2:* Computer Oriented Microwave Design and Practices—chaired by B. Perlman and organized by V. Gelnovatch.
- Session D2:* High Power—chaired by J. Osepchuk and organized by H. Goldie.

Wednesday, June 22

- Session A3:* Microwave Integrated Circuits—chaired and organized by U. Geysel.
- Session B3:* Digital Microwave Systems—chaired by M. Yoder and organized by G. Chao.
- Session C3:* Microwave and MM Wave Solid State Circuit Development in Japan—chaired by Y. Nakamura and organized by S. Saito.
- Session D3:* Applications to Cancer Treatment I—chaired by A. Ecker and organized by W. Guy.
- Session A4:* Fet Devices and Circuits—chaired by B. Berson and organized by A. Rosen.
- Session B4:* Filters I—chaired by S. Cohn and organized by R. Levy.
- Session C4:* Microwave Acoustics—chaired by T. Bristol and organized by R. Williamson.
- Session D4:* Applications to Cancer Treatment II—chaired by R. Atkinson and organized by W. Guy.



Scenes from the Banquet.



Steering Committee

Upper (left to right): D. Rubin, G. Schaffner, T. Kihm

Lower (left to right): W. Boley, D. Proctor, H. Faller, E. Silverstein



Technical Program Committee

Upper (left to right): J. Horton, J. Gallagher, D. Anderson, D. Sparks

Lower (left to right): J. Aukland, W. Cooper, J. Degenford, H. Kuno

Thursday, June 23

- Session A5:* Microwave and Millimeter Wave Integrated Circuits—chaired and organized by R. Knerr.
- Session B5:* Filters II—chaired by A. Williams and organized by S. Cohn.
- Session C5:* Satellite Communication Systems—chaired by R. Hicks and organized by J. Horton.
- Session D5:* Waveguides and Transmission Lines—chaired and organized by T. Itoh and D. Bolle.
- Session A6:* Low Noise Components & Techniques—chaired by J. Whelehan and organized by J. Honda.
- Session B6:* Passive Components—chaired by M. Horton and organized by S. Cohn.
- Session C6:* Ferrites—chaired and organized by F. J. Rosenbaum.
- Session DC:* Antennas and Components—chaired and organized by D. C. Chang.

DIGEST

A 561 page *Digest* was professionally edited by Ed Silverstein of Cubic Corporation. Copies can be obtained for \$28.00 by ordering IEEE Catalog No. 77CH1219-5 MTT, Library of Congress Catalog Card No. 66-9399.

ACKNOWLEDGMENT

This Symposium owes its success to people and organizations who contributed their time and support. Special thanks go to the members of the Steering and Technical Program Committees and their firms. Members of these committees are listed as follows:

1977 MTT-S STEERING COMMITTEE

Chairman: David Rubin, Naval Ocean Systems Center

Technical Program: Gerald Schaffner (C),

Teledyne Ryan

Hriar Cabayen, IRT

Local Arrangements: Thomas Kihm (C), Naval Ocean Systems Center

Vincent Learned, San Diego

State University

William Boley, General Dynamics

Finance:

David Proctor, Naval Ocean Systems Center

Publicity:

Michael Devan, Naval Ocean Systems Center

Editor:

Ed Silverstein (C), Cubic Corporation

Harlan Faller,

Cubic Corporation

1977 TECHNICAL PROGRAM COMMITTEE MEMBERS

Stephan F. Adam	Hewlett-Packard
W. Ross Aday	Univ. of California
D. B. Anderson	Rockwell International
E. Belohoubek	RCA Laboratories
B. Berson	Hewlett-Packard
Donald M. Bolle	Brown University
Thomas Bristol	Hughes Aircraft Company
Kenneth J. Button	MIT
Herman Chait	Aerospace Corporation
David C. Chang	University of Colorado
G. Chao	Tektronix
Al Clavin	Hughes Aircraft Company
Seymour B. Cohn	S. B. Cohn Associates
Ray Camisa	RCA Laboratories
E. G. Cristal	Hewlett-Packard
Louis Cuccia	Philco-Ford
G. A. Deschamps	University of Illinois
H. Allen Ecker	Georgia Inst. of Technology
Beron Fank	Varian Associates



Technical Program Committee

Upper (left to right): G. Michell, R. Knerr, F. Rosenbaum, D. Anderson
 Lower (left to right): R. Levy, A. Williams, M. Horton, S. Cohn,
 H. Stinehelfer, G. Schaffner



Technical Program Committee

Upper (left to right): J. Gallagher, B. Berson, H. Goldie, J. Horton,
 A. Rosen
 Lower (left to right): B. Fank, E. Komarek, S. Adam, B. Perlman, J. Kuno



Technical Program Committee

Upper (left to right): R. Williamson, T. Bristol, D. Bolle, R. Wagers,
 G. Chao
 Lower (left to right): G. Matthaei, U. Gysel, T. Itoh, R. Kihm



Technical Program Committee

Upper (left to right): G. Oltman, P. Rodrigue, A. Clavin, E. Komarek,
 J. Allen, S. Adam
 Lower (left to right): D. Parker, C. Rucker, H. Sobol, L. Whicker,
 B. Spielman, F. Rosenbaum, H. Stinehelfer, N. Perner

J. J. Gallagher	Georgia Inst. of Technology
W. Gelnovatch	US Army Electronics Command
Ulrich Gysel	Stanford Research Institute
Detlef Gloge	Bell Laboratories
Harold Goldie	Westinghouse
Ashok Gorwara	Plamic International
Arthur W. Guy	University of Washington
Clinton Hartman	Texas Instruments
Jack Honda	TRW Systems
J. B. Horton	TRW Systems
M. C. Horton	M. C. Horton Associates
Tatsu Itoh	Stanford Research Institute
D. R. Justesen	Veterans Administration
R. H. Knerr	Bell Laboratories
E. L. Komarek	National Bureau of Standards
John Kuno	Hughes Aircraft Company
Ralph Levy	Microwave Developments Labs.
G. L. Matthaei	University of California
Lutz Michell	Air Force Avionics Lab

Raj Mittra	University of Illinois
Herman Okean	LNR Communications Inc.
J. M. Osepchuck	Raytheon
B. S. Perlman	RCA Laboratories
Arye Rosen	RCA Laboratories
F. J. Rosenbaum	Washington University
Eugene Sard	AIL
M. V. Schneider	Bell Laboratories
P. Silvester	McGill University
Hal Sobol	Collins Radio Company
H. E. Stinehelfer	Microwave Associates
C. B. Swan	Bell Laboratories
Henry Taylor	Naval Ocean Systems Center
K. Tomiyasu	General Electric Company
R. S. Wagers	Collins Radio Company
J. Whelehan	Airborne Instruments Lab
A. E. Williams	COMSAT Labs
R. C. Williamson	MIT
Max Yoder	Office of Naval Research