

# The 1984 MTT-S International Microwave Symposium

STEPHEN F. ADAM, FELLOW, IEEE

THE SAN FRANCISCO/SANTA CLARA VALLEY MTT-S Chapter had the honor of hosting the IEEE's Centennial year International Microwave Symposium and Workshops. The conference was held in the Civic Auditorium of San Francisco, with the exhibits in the adjoining Brooks Hall. The Hyatt Regency Hotel of San Francisco at the Embarcadero Center served as the headquarters hotel. Six other major hotels were also occupied by conference attendees. This was the first time that hotels were scattered across a major city, separated from the conference. A practically continuous shuttle bus service and BART and MUNI (local rapid transit systems) operated very smoothly, with minimal inconvenience.

The 1984 IEEE Microwave and Millimeter-Wave Monolithic Circuits Symposium was jointly held during this week of microwave events (May 28–June 1, 1984). There were also three panel sessions: one dealing with Millimeter-Wave Measurements, moderated by William H. Prather (Electromagnetic Sciences Inc., Atlanta, GA); another panel session on MMIC's (Microwave Monolithic Integrated Circuits), A Prognosis Update, moderated by Marvin Cohn (Westinghouse Electric Corp., Baltimore, MD); and a special panel session on Japan/U.S.A. Competition in Technology, moderated by Leo Young (Undersecretary of Defense for R & D, Washington, DC). There were seven workshops, including the ARFTG workshop, held the week following the Symposium (June 5–6, 1984) in Santa Rosa, CA. A joint session between the two symposia was held Wednesday, with a plenary session of the MTT-S International Microwave Symposium kicking off the day's events. A variety of social events were planned throughout the week. The Annual Awards Banquet was held Thursday evening, May 31, 1984. Microwave Exhibits were housed in Brooks Hall, adjoining the Civic Auditorium.

The Symposium was officially opened by Conference Chairman Stephen F. Adam, at the well-attended plenary session in the main arena of the Civic Auditorium. H. George Oltman, Jr., MTT-S President, added his welcoming remarks. Conference Technical Program Committee Chairman, Ferdo Ivanek, explained the Technical Program. The Keynote Address was delivered by John A. Young, President and Chief Executive Officer of Hewlett-Packard Company, who also serves as Chairman of the President's Commission on Industrial Competitiveness. An abridged version of his address is included in this TRANSACTIONS issue.



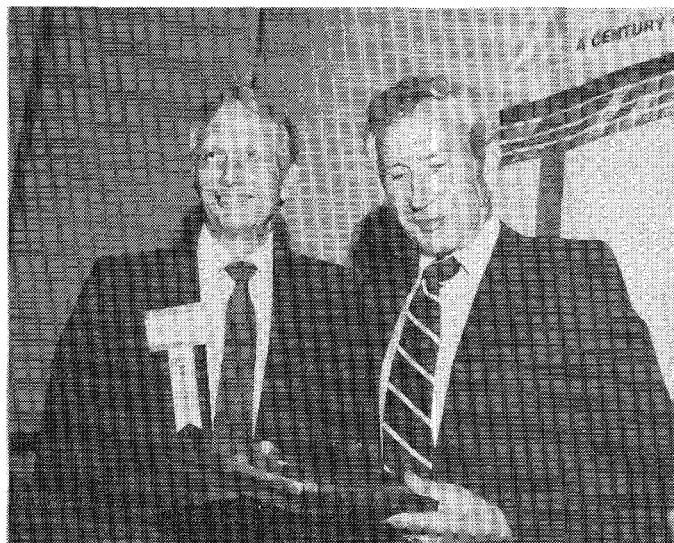
Symposium Chairman Stephen F. Adam, MTT President H. George Oltman, Jr., and Keynote Speaker John. A. Young, after the plenary session.

In addition to the Technical Program, an excellent Spouses Program was planned, showing off the sights of the greater San Francisco Bay Area. There were trips to Alcatraz Island, a shopping spree to Jackson Square, an evening Bay Cruise and dinner in Tiburon, a visit to the Filoli Mansion (featured in the TV show *Dynasty*) in Menlo Park, a comprehensive victorian mansion tour of San Francisco, and a whole day Saturday trip through the wine country of Northern California.

The Annual Awards Banquet was the highlight of all the social events during the Symposium. It was held in the Grand Ballroom of the San Francisco Regency Hyatt Hotel. Six hundred and twenty five people attended this gala affair, witnessing John R. Pierce receiving this year's Microwave Career Award. H. George Oltman, Jr. presented the awards. The Microwave Prize of 1984 was presented to Reinmut K. Hoffman and Johann Siegl. The Microwave Applications Award was received by Paul J. Meier. The second Distinguished Service Award granted in the history of the MTT-S Society was presented, with great honor, to Alvin Clavin. His acceptance remarks were particularly moving. The Distinguished Microwave Lecturer plaque was presented to Stephen F. Adam. This centennial year, 20 IEEE Centennial Medals were awarded to MTT members at the Symposium Banquet. The late Donald D. King's medal was sent to his widow, as a result of his



John R. Pierce acknowledges the Awards Banquet attendees, with H. George Oltman, Jr., upon receiving the 1984 Microwave Career Award.



Alvin Clavin receives the Distinguished Service Award from H. George Oltman, Jr. This was only the second such award granted by the IEEE-MTT Society.



Reinmut K. Hoffman and Johann Siegl receiving the 1984 Microwave Prize from H. George Oltman, Jr., for their work on Microstrip-Slot Coupler design.

untimely death. The remaining 19 members are listed below.

Stephen F. Adam  
Alfred C. Beck  
Alvin Clavin  
Seymour Cohn  
Marion E. Hines  
William W. Mumford  
Arthur A. Oliner  
Don Parker  
George P. Rodrigue  
Fred J. Rosenbaum

Charles T. Rucker  
Theodore S. Saad  
Phillip H. Smith (could not attend because of illness)  
Harold Sobol  
Richard A. Sparks  
Kiyo Tomiyasu  
Lawrence R. Whicker  
John R. Whinnery  
Leo Young



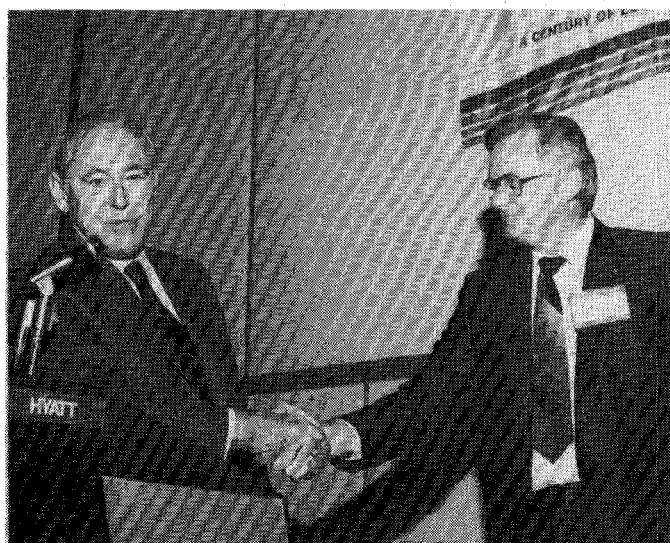
Paul J. Meier accepts the 1984 Microwave Applications Award, for pioneering applications to finline, from H. George Oltman, Jr.



Stephen F. Adam receives a plaque from H. George Oltman, Jr., in recognition of his work as 1984 Distinguished Microwave Lecturer.



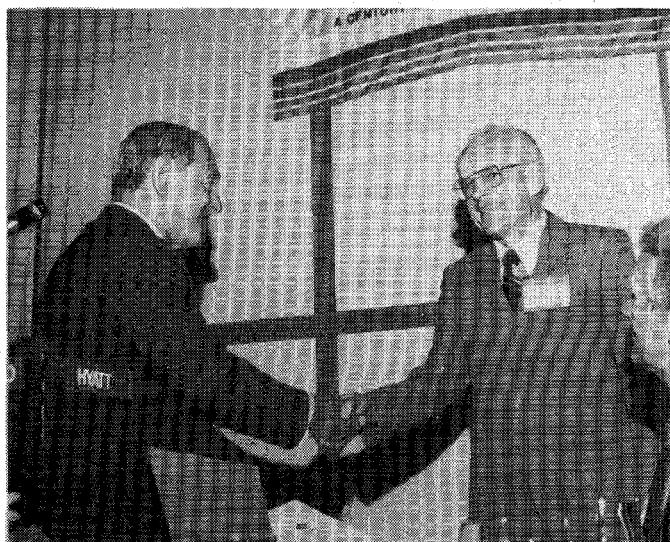
H. George Oltman, Jr., presents Centennial Medals to Marion E. Hines, William W. Mumford, Alvin Clavin, Stephen F. Adam, and Alfred C. Beck.



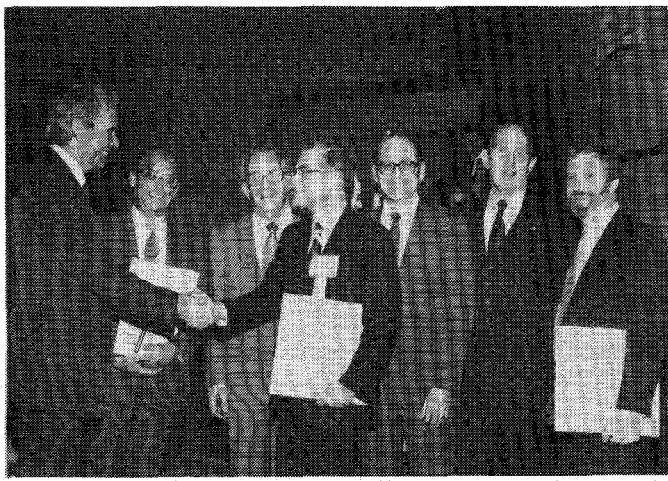
Bruno O. Weinschel congratulates Julian W. Dees upon receiving the IEEE Fellow Certificate.



H. George Oltman, Jr., presents Centennial Medals to Richard A. Sparks, Leo Young, Don Parker, Kiyo Tamiyasu, John R. Whinnery, and Lawrence R. Wicker.



Bruno O. Weinschel presents the IEEE Fellow Certificate to Glenn F. Engen.

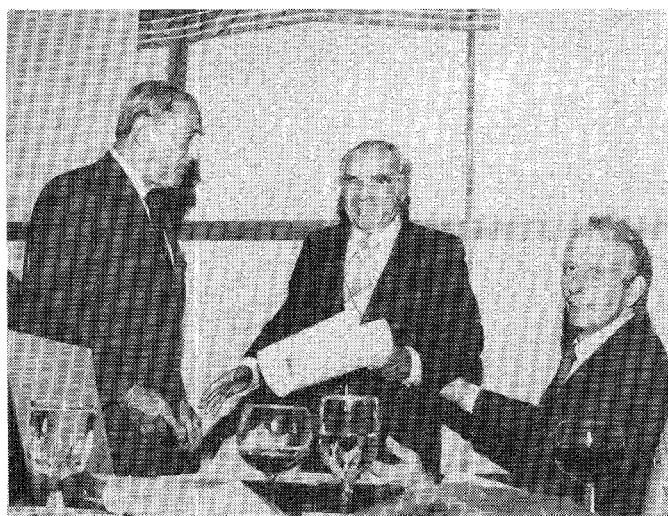


H. George Oltman, Jr., presents Centennial Medals to Harold Sobol, Theodore S. Saad, Arthur A. Oliner, Charles T. Rucker, George P. Rodrigue, and Fred J. Rosenbaum.

Next, Bruno O. Weinschel, the 1986 Institute Presidential Candidate and well-known personality in microwave circles, presented this year's IEEE Fellow Awards to those who chose to receive them at the Symposium:

Gunther U. Sorger	Anthony R. Kerr
Julian W. Dees	William R. Wisseman
Glenn F. Engen	Eikichi Yamashita

Following the award presentations, Larry Stark (Arrangements Co-Chairman) introduced a triple treat of entertainment. First, the Donald Pippin Pocket Opera performed some memorable melodies. The second act kept the audience at a high level of apprehension, when Ray Jason demonstrated his outstanding juggling skill. Performers of the Oakland Ballet elegantly concluded the entertainment.



Bruno O. Weinschel and H. George Oltman, Jr., with Gunter U. Sorger (center) upon receiving the IEEE Fellow Certificate.



Bruno O. Weinschel presents the IEEE Fellow Certificate to William R. Wisseman.



Eikichi Yamashita receives the IEEE Fellow Certificate from Bruno O. Weinschel.

#### HISTORICAL EXHIBITS AND EXHIBITION

Since this year is the centennial year of the IEEE, we expanded our historical exhibit with the Institute's two historical exhibits. Ted Saad has continued to serve as Chief Curator of our ever, if slowly, growing Historical Exhibits.

The Exhibition was the largest so far in MTT-S History, with some 360 exhibition booths in the Brooks Hall, adjoining the Civic Auditorium, where the Technical Sessions were held. The quality of the exhibits was again outstanding due to the professional leadership of Howard Ellowitz, of Horizon House, who has managed the MTT-S Symposium exhibits for the past eight years.

#### SYMPOSIUM ATTENDANCE

The grand total of the Symposium attendance was 5695, exclusive of duplicate registrations. Total MTT-S Technical Program registration climbed to an all time high of 1556. Six hundred and ninety three attendees registered for the Microwave and Millimeter-Wave Monolithic Circuits Symposium. The workshops were also well attended. One hundred and thirty four people attended the Testing and Trimming of MMIC's workshop. Sixty three people registered for the Numerical Techniques workshop. The Coaxial Connectors-40 GHz workshop had 64 participants. The Suspended Stripline Filter Technology workshop had 113 registrants. Eighteen professionals attended the workshop on Clinical Hypothermia. The participation of the workshop on Industrial Applications of Microwaves reached 28. Following the Symposium, the ARFTG workshop had 110 registrants at Santa Rosa, CA.

#### TECHNICAL PROGRAM

The Technical Program was limited to three parallel sessions for the second year. The very successful pioneering effort of last year's Symposium Program Committee, with the introduction of the Open Forum Session, was further expanded this year. The Technical Program sessions and their Chairmen are listed below.

- Session 1: Monolithic Millimeter-Wave Circuits  
B. E. Spielman, NRL, Washington, DC  
R. W. Sudbury, MIT Lincoln Lab, Lexington, MA
- Session 2: Field Theory and Guiding Structures  
J. Knorr, Naval Postgraduate School, Monterey, CA
- Session 3: Acoustic and Magnetic Devices  
T. Lukaszek, U.S. Army Electronics Command, Fort Monmouth, NJ
- Session 4: Devices and Monolithic Circuit Elements  
D. R. Chen, Microwave Monolithics, Simi Valley, CA  
M. N. Yoder, ONR, Arlington, VA
- Session 5: Component Applications of Field Theory  
E. J. Denlinger, RCA Laboratories, Princeton, NJ

Session 6: Biomedical Aspects of Microwaves  
A. Rosen, RCA Laboratories, Princeton

Session 7: Open Forum I  
18 Papers

Session 8: FET Amplifiers  
S. Temple, Raytheon Company, Bedford, MA

Session 9: Filters  
R. S. Snyder, R. S. Microwave, Butler, NJ

Session 10: Systems  
G. Heiter, AT&T Bell Laboratories, North Andover, MA

Session 11: Noise-Frequency Stabilization of FET Oscillators  
F. N. Sechi, RCA Laboratories, Princeton

Session 12: Communications Filters  
H. C. Bell, Wavecom Division, Loral Co., Northridge, CA

Session 13: Systems Topics  
J. B. Horton, TRW, Redondo Beach, CA

Session 14: Open Forum II  
17 Papers

Session 15: Semiconductor Control and Frequency Conversion  
J. F. White, MA/COM Inc., Burlington, MA

Session 16: Millimeter-Wave Applications  
J. E. Raue, TRW, Redondo Beach, CA

Session 17: MIC Techniques  
R. L. Camisa, RCA Laboratories, Princeton, NJ

Session 18: FET Modeling and Novel Structures  
M. Kumar, RCA Laboratories, Princeton, NJ

Session 19: Millimeter-Wave Techniques  
M. Dydyk, Motorola Inc., Scottsdale, AZ

Session 20: Planar Transmission-Line Structures  
J. M. Owens, University of Texas at Arlington, Arlington, TX

Session 21: Impatt and Bipolar Oscillators  
N. W. Cox, Georgia Institute of Technology, Atlanta, GA

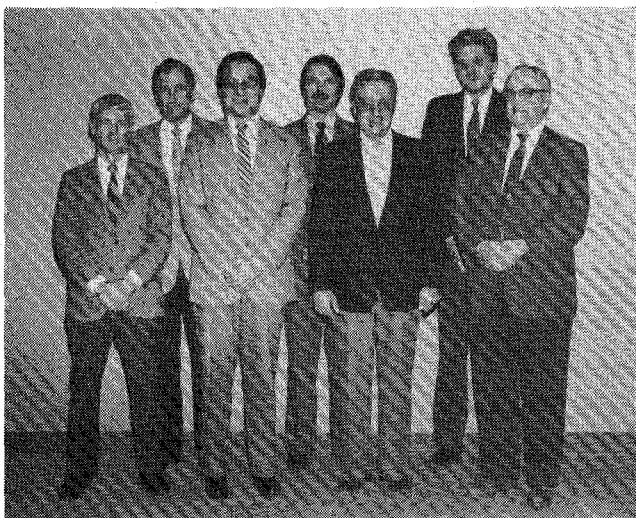
Session 22: Dielectric Waveguides  
D. Kajfez, University of Mississippi, University, MS

Session 23: Microwave and Millimeter-Wave Measurements  
B. S. Perlman, RCA Laboratories, Princeton, NJ

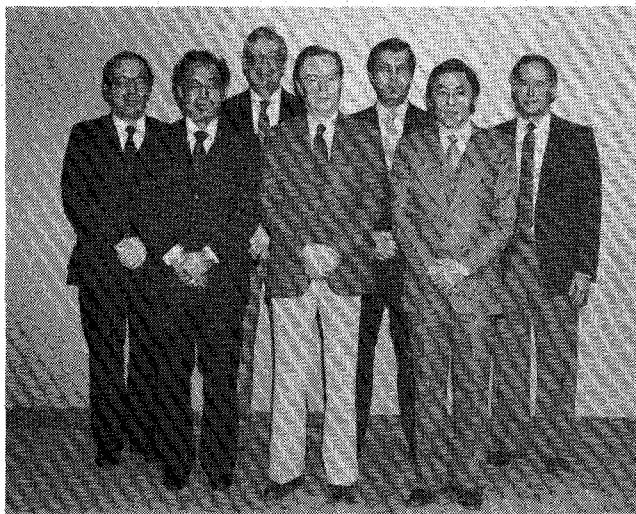
Session 24: Optical and Submillimeter-Wave Technology  
W. S. C. Chang, University of California at San Diego, La Jolla

Session 25: Millimeter-Wave Mixers  
S. Dixon, Jr., ERADCOM, Fort Monmouth, NJ

Session 26: Six-Port Measurements Techniques  
G. F. Engen, National Bureau of Standards, Boulder, CO



1984 Symposium Steering Committee  
*Front:* E. Hensperger, R. Wong, S. Adam, E. Matthews.  
*Back:* D. Chambers, L. Stark, R. Pratt.



1984 Symposium Steering Committee  
*Front:* R. Kagiwada, F. Ivanek, P. Chen.  
*Back:* E. J. Crescenzi, Jr., N. Kuhn, J. Barrera, J. Stone.

#### 1984 SYMPOSIUM STEERING COMMITTEE

I would like to thank the Symposium Steering Committee for their dedication and hard work, making this Symposium an outstanding and memorable event. Association with such individuals is one of the most rewarding aspects of membership in a professional society. A list of the Steering Committee members and their employers are listed below.

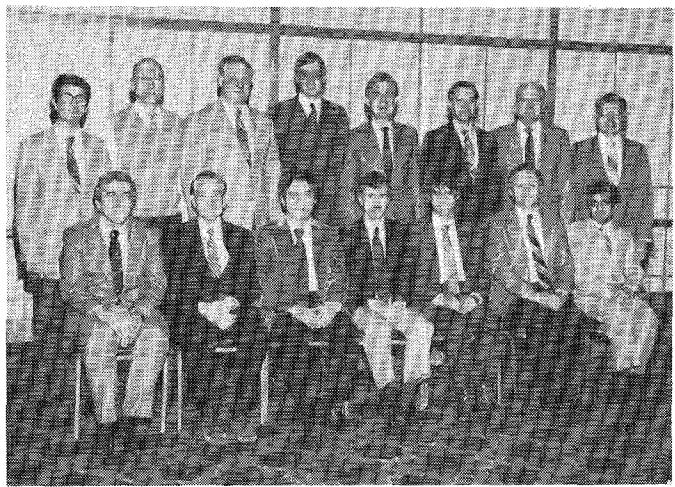
*Chairman:* Stephen F. Adam, Adam Microwave Consulting, Inc. (formerly with Hewlett-Packard Company)

*Vice-Chairman:* E. Wes Matthews, Ford Aerospace and Communications Corp.

*Secretary:* Roger Wong, Hewlett-Packard Company



The Technical Program Committee group on MIC Techniques including (left to right) John Owens, Ed Nienke, Harlan Howe, Karl Niclas, Robert Pucel, and Raymond L. Camisa.



1984 Technical Program Committee  
*Front Row:* N. G. Alexopoulos, A. A. Oliner, T. Itoh, J. B. Knorr, L. Bui, J. E. Degenford, M. Kumar.  
*Back Row:* F. N. Sechi, E. G. Cristal, L. F. Eastman, S. J. Temple, B. Berson, E. J. Denlinger, N. R. Dietrich, J. W. Mink.



The Technical Program Committee, apparently negotiating the status of a paper, with (left to right) Robert V. Snyder, Ralph Levy, Seymour B. Cohn, Ali E. Atia, and H. Clark Bell.



1984 Technical Program Committee  
*Front Row:* P. T. Chen, M. Caulton, J. J. Taub, C. M. Krowne, R. Levy, S. L. March.  
*Back Row:* E. J. Crescenzi, Jr., W. E. Hord, R. A. Sparks, G. R. Harrison, M. Dydyk, M. Cohn, F. Ivanek.

**Members-at-Large:** Edward (Bud) Cristal, Hewlett-Packard Company  
 Robert Bathiany, Wiltron Company

**Technical Program:**

**Chairman:** Ferdo Ivanek, Farinon Div., Harris Corporation

**Vice Chairman:** E. James Crescenzi, Jr., Watkins-Johnson Company

**Spec. Session:** Joseph Barrera, Harris Microwave Semiconductor

Reynolds Kagwada, TRW WSG

**Secretary:** Philip Chen, Farinon Div., Harris Corporation

**Arrangement:** Lawrence Stark, Hewlett-Packard Company

Jay Stone, Jay Stone & Associates

**Finance:** Edward Hensperger, RYT Industries

**Publications:** Ronald E. Pratt, Hewlett-Packard Company

**Publicity:** Nicholas Kuhn, Hewlett-Packard Company

**Registration:**

Donald R. Chambers, Hewlett-Packard Company

**Centennial Act:**

Bert Berson, Eagle Products

**Exhibits:** Pang-Ting Ho, Gillespie Communications, Inc.

Howard Ellowitz, Horizon House

**Ladies Program:** Mrs. Stephen (Edie) Adam

Mrs. Edward (Phyllis) Hensperger

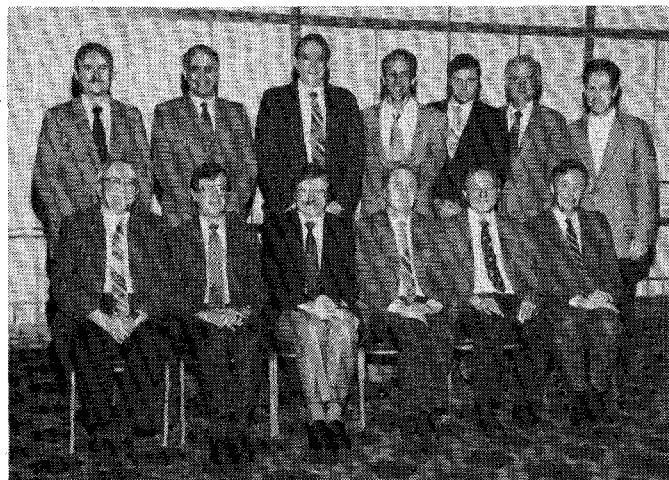
#### 1984 TECHNICAL PROGRAM COMMITTEE

The Technical Program Committee's challenging assignment is to select the papers best suited for presentation at the Symposium and to organize the Technical Sessions. The task of paper selection requires extensive research and preparation and is often controversial and difficult. Changes in Technical Session composition and format are debated and incorporated in a continuing effort to improve each year's Technical Program.



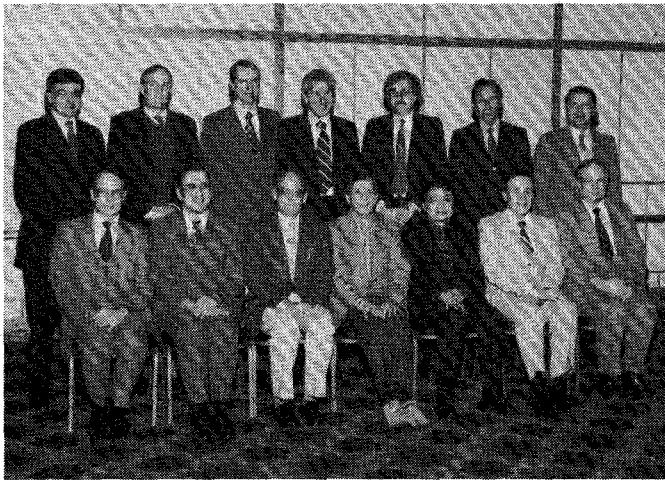
1984 Technical Program Committee

*Front Row:* J. Raue, H. Steinbrecher, G. Jerinic, J. Whelehan, J. C. Wiltse, S. Dixon.  
*Back Row:* F. J. Rosenbaum, D. Parker, A. G. Cardiasmenos, J. F. White, D. M. Bolle, P. W. Staeker, N. W. Cox, C. T. Rucker.



1984 Technical Program Committee

*Front Row:* E. W. Matthews, R. B. Hicks, G. M. Gooch, K. B. Niclas, R. A. Pucel, H. Howe, Jr.  
*Back Row:* S. Okwit, R. H. Camisa, E. C. Niehenke, J. M. Owens, D. N. McQuiddy, J. B. Horton, G. L. Heiter.



1984 Technical Program Committee

*Front Row:* R. E. Brown, A. E. Atia, H. Sobol, S. B. Cohn, W. S. C. Chang, R. V. Snyder, C. R. Boyd.  
*Back Row:* R. H. Knerr, H. C. Bell, P. M. La Tourrette, A. Clavin, T. J. Lukaszek, R. D. Weglein, D. C. Hanson.



1984 Technical Program Committee

*Front Row:* James C. Lin, Mario A. Maury Jr., R. H. Swartley, B. S. Perlman, A. E. Williams, H. G. Oltman, Jr., G. L. Matthaei.  
*Back Row:* A. Rosen, D. Kajfez, G. F. Engen, J. Lange, E. Belohoubek, C. Buntshun, B. Hallford, J. M. Osepchuk.

The program Committee members were:

S. F. Adam	M. Caulton	V. G. Gelnovatch
N. G. Alexopoulos	W. S. C. Chang	G. Gouch
A. E. Atia	A. Clavin	P. T. Greiling
Y. Ayasli	M. Cohn	B. R. Hallford
H. C. Bell	S. B. Cohn	D. Hanson
E. F. Belohoubek	N. W. Cox	G. R. Harrison
B. Berson	E. G. Cristal	G. L. Heiter
D. M. Bolle	H. M. Cronson	R. B. Hicks
C. R. Boyd, Jr.	J. E. Degenford	W. E. Hord
R. Brown	E. J. Denlinger	D. Hornbuckle
L. Q. Bui	P. DeSantis	J. B. Horton
C. Buntschuh	N. R. Dietrich	H. Howe
K. J. Button	S. Dixon, Jr.	T. Itoh
R. Camisa	M. Dydyk	G. Jerinic
A. G. Cardiasmenos	L. Eastman	D. Kajfez
P. H. Carr	G. F. Engen	R. H. Knerr

J. B. Knorr	E. C. Niehenke	H. Sobol
C. M. Krowne	S. Okwit	R. A. Sparks
M. Kumar	A. A. Oliner	B. E. Spielman
H. J. Kuno	H. G. Oltman, Jr.	P. Staeker
J. Lange	J. M. Osepchuk	D. Steinbrecher
P. LaTourrette	J. M. Owens	R. Swartley
R. Levy	D. Parker	J. J. Taub
J. C. Lin	B. S. Perlman	S. J. Temple
T. Lukaszek	R. A. Pucel	K. Timiyasu
D. W. Maki	J. Raue	R. D. Weglein
S. L. March	G. P. Rodrigue	R. J. Wenzel
G. Matthaei	A. Rosen	J. J. Whelehan, Jr.
E. W. Mathews	F. J. Rosenbaum	J. White
M. A. Maury, Jr.	C. T. Rucker	A. E. Williams
D. N. McQuiddy	T. S. Saad	J. C. Wiltse
J. Mink	F. N. Sechi	W. R. Wisseman
K. B. Niclas	R. Snyder	M. Yoder



1984 IEEE MTT-S Administrative Committee  
*Front Row:* J. Raue, H. G. Oltman, Jr., H. Howe, Jr.  
*Back Row:* A. A. Oliner, R. A. Sparks, T. S. Saad, M. A. Maury, Jr.

#### 1984 MTT-S ADMINISTRATIVE COMMITTEE

The Administrative Committee of MTT-S is the governing body of our Society. It takes a lot of dedicated workers a great deal of time to govern our Society. A list of them is given below.

##### Society Officers

<i>President:</i>	H. G. Oltman, Jr.
<i>Vice-President:</i>	H. Howe, Jr.
<i>Secretary/Treasurer:</i>	Jorge Raue

##### Administrative Committee (AdCom) Membership

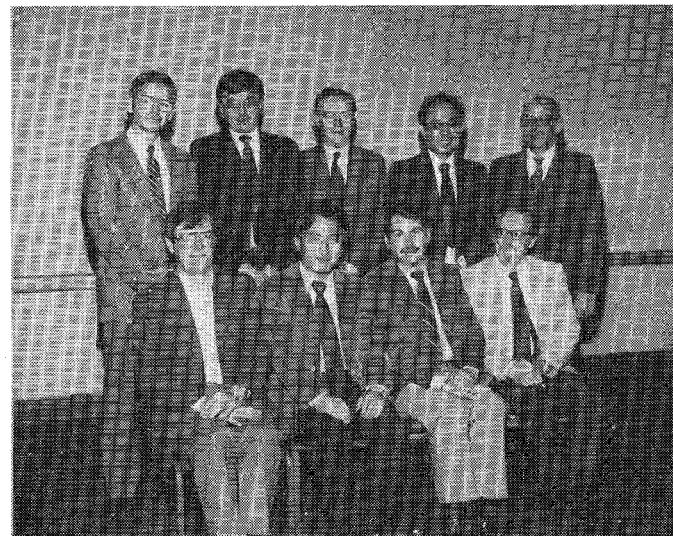
N. W. Cox	F. Ivanek	S. L. March
J. E. Degenford, Jr.	T. Itoh	D. N. McQuiddy, Jr.
V. G. Gelnovatch	G. Jerenic	E. C. Niehenke, Jr.
P. T. Greiling	R. Kagiwada	H. G. Oltman, Jr.
R. B. Hicks	R. H. Knerr	J. M. Roe
H. Howe	H. J. Kuno	B. E. Spielman

##### Ex-Officio (Past Presidents)

F. J. Rosenbaum	R. A. Sparks	C. T. Rucker
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1984 IEEE MTT-S Administrative Committee  
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##### Honorary Life Members

A. C. Beck	D. D. King	A. A. Oliner
S. B. Cohn	W. W. Mumford	T. S. Saad
	K. Tomiyasu	L. Young