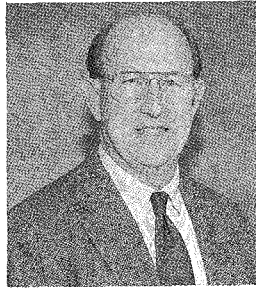
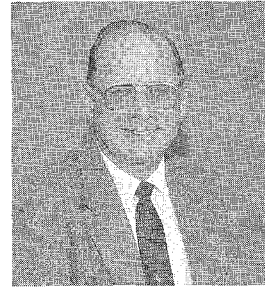


1993 Symposium Steering Committee



G. P. Rodrigue
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Charles T. Rucker
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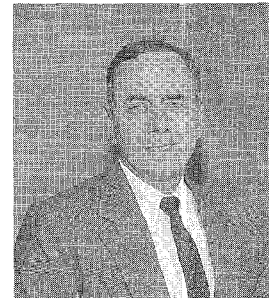
TECHNICAL PROGRAM



Gordon R. Harrison
Chairman

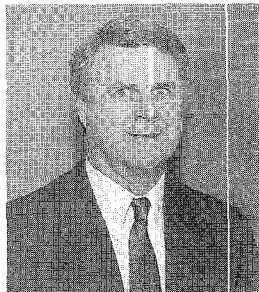


Paul R. Cox



H. Mike Harris

LOCAL ARRANGEMENTS



E. Jerry Archbold
Chairman



Keith Zionts



Paul G. Steffes



Albin J. Gasiewski

Not Pictured: Mark Toolan

PUBLICITY

SYMPOSIUM DIGEST



Waymond R. Scott, Jr.
Chairman



B. Keith Edenfield



Glenn D. Hopkins

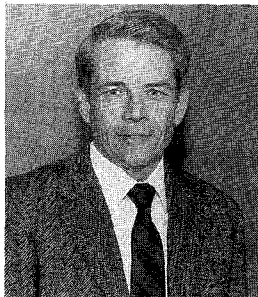


James C. Wiltse

WORKSHOPS

1993 Symposium Steering Committee

TRANSACTION



Glenn S. Smith
Editor

STUDENT PAPERS



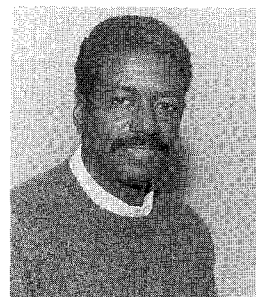
Andrew F. Peterson

POSTER SESSIONS



W. Horton Prather

SPECIAL EVENTS



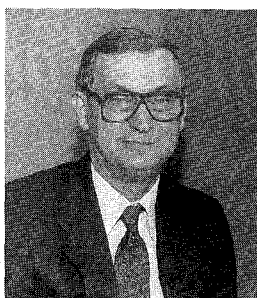
Glenn Wakefield

FINANCE



Russell L. Roberts

REGISTRATION



John C. Hoover

TRANSPORTATION



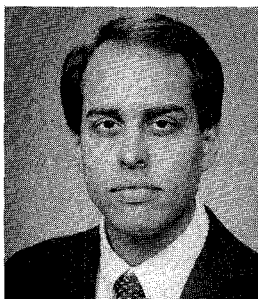
Steven B. Thompson

CATERING



Steve Kenney

LIAISON



Eric Barnhart
NTC



Tim Semones
ARFTG



Robert S. Duggan
International



Larry Whicker
Production Assistance

EXHIBITS



Harlan Howe



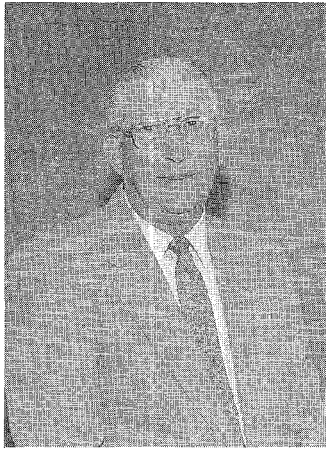
Howard I. Ellowitz

Not Pictured:

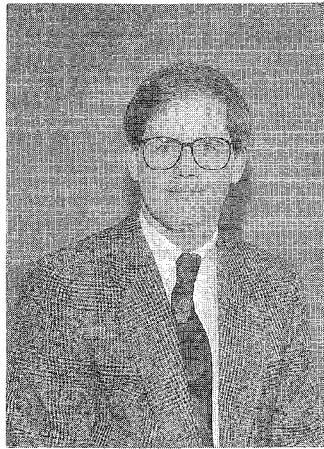
Exhibit Liaison—Jim Banks
Signs—Bill Alverson
Historical Events—James E. Brittain
Consultant—Ray Howland
Production Assistance—Margaret Whicker

MESSAGE

from the Technical Program Chairpersons



Gordon R. Harrison



Paul R. Cox



H. Mike Harris

The Technical Program Committee (TPC), composed of one hundred and seventy-seven scientists and engineers, reviewed and evaluated 614 contributed papers on January 10, 1993. This total included 30 papers from student authors. Three hundred twenty one (321) papers were received from U.S. authors and 293 from authors in 23 other countries. Three hundred thirty (330) of these papers were accepted for presentation at the conference including 99 for the interactive forum. One hundred sixty two (162) papers were accepted from U.S. contributors and 168 papers from international contributors from 19 countries. A total of 26 invited papers (mostly in special sessions) were added to the 330 papers selected by the TPC bringing the total to 356 presentations available to attendees at the conference.

The resultant technical program is composed of 51 technical sessions including two interactive forum sessions and seven special or focused sessions.

In addition to the 51 technical sessions, the symposium includes eighteen special topic workshops, four Tuesday evening rump sessions, and three lunch time panel sessions. Also available to attendees by special registration are the technical programs organized by the Microwave and Millimeter Wave Monolithics Conference (MMWMC) on Monday, by the National Telesystems Conference (NTC) on Wednesday and Thursday, and the Automatic RF Techniques Group (ARFTG) on Friday.

Effort has been made to cover all technical topics of current interest to the microwave community and to provide a complete international, global, perspective of research and applications of microwave technology.

This digest, containing information on each technical session and each technical paper, is intended to communicate and to document fully the technical program presented as well as to provide a current documented perspective of the state of technology and applications of the Microwave Society.

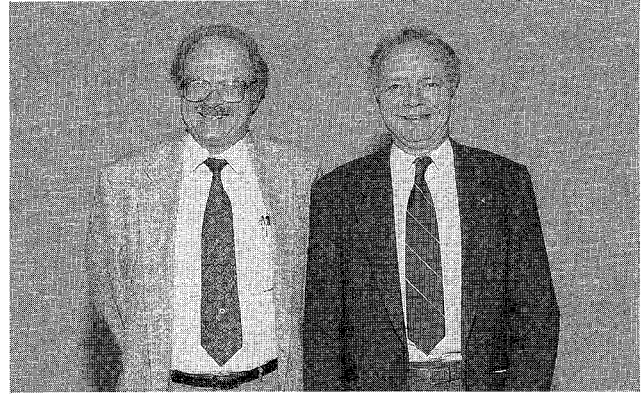
Technical Program Chairpersons,
GORDON R. HARRISON
PAUL R. COX
H. MIKE HARRIS

Technical Program Committee



Symposium Group Committee

Front Row (l-r): Robert Eisenhart, Don Parker, G. Keith Huddleston
Standing (l-r): Daniel Masse, Glenn R. Thoren, Rudolf Henning, John Wassel



Biological Effects and Medical Applications

(l-r): Arye Rosen, Andre Vander Vorst



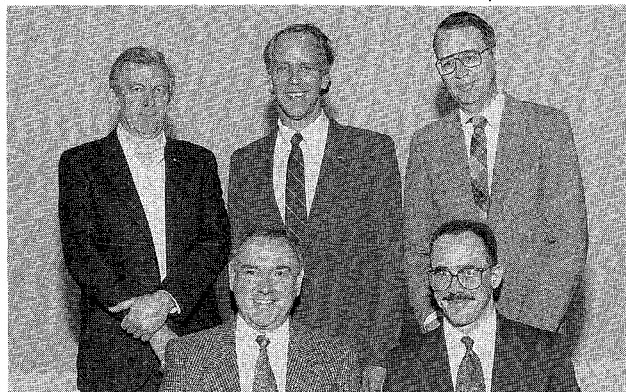
Passive Components

Front Row (l-r): Kawthar A. Zaki, Theresa A. Brunasso, Glenn D. Hopkins, Tatsuo Itoh
Standing (l-r): Victor Fouad Hanna, Ali E. Atia, Jesse Taub, Linda P. B. Katehi



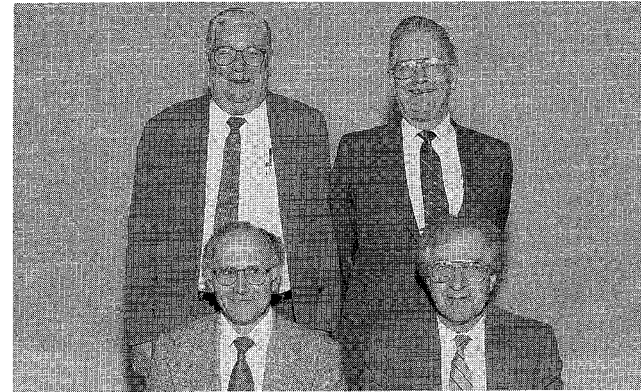
Filters and Multiplexors

Front Row (l-r): H. C. Bell, S. Jerry Fiedziusko, Daniel G. Swanson
Standing (l-r): Chandra M. Kudsia, Richard V. Snyder, Yi-Chi Shih, George L. Matthaei



Ferrite Components

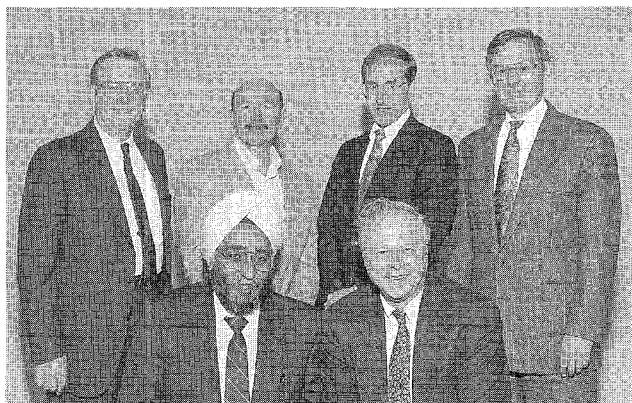
Front Row (l-r): Lionel E. Davis, J. Todd Vaughn
Standing (l-r): William E. Hord, John M. Owens, Denis Webb



Acoustic and Surface Wave Components

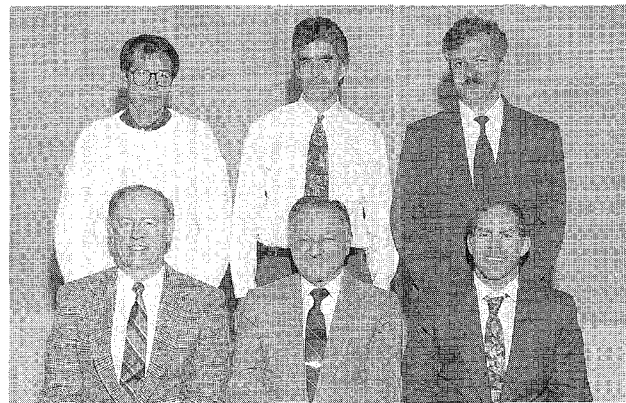
Front Row (l-r): J. Douglas Adam, Ted J. Lukaszek
Standing (l-r): Bruce McAvoy, Robert A. Moore

Technical Program Committee



Solid State, Signal Processing and Control Components

Front Row (l-r): A. P. S. Khanna, Joseph White
Standing (l-r): Nick Jansen, Bernard E. Sigmon, Dean Peterson, Peter W. Staecker



Non-Linear Modeling and Analysis

Front Row (l-r): Walter R. Curtice, Robert A. Pucel, Cliff Krowne
Standing (l-r): M. B. Steer, Jason Gerber, Mark Calcaterra



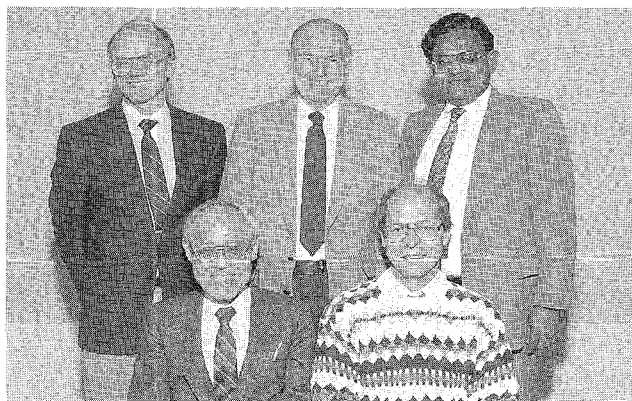
Transistor Power Amplification

Front Row (l-r): James E. Degenford, David Cahana, W. Wisseman
Standing (l-r): E. James Crescenzi, Jr., Lawrence J. Kushner, John Heaton, H. John Kuno



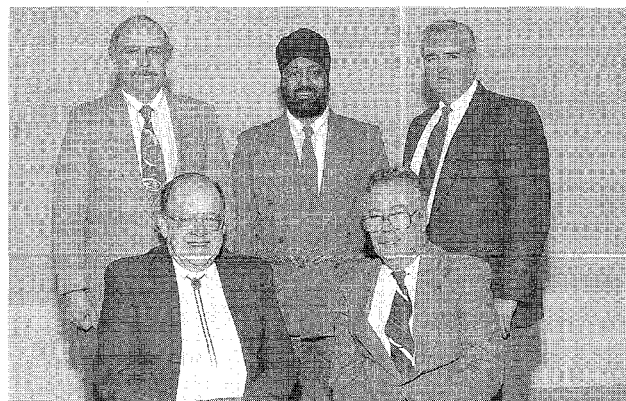
High Power Sources and Control Components

(l-r): Jitendra Goel, Steven N. Stitzer



Low Noise and Receiver Technology

Front Row (l-r): Kiyo Tomiyasu, E. A. Rezek
Standing (l-r): Marian W. Pospieszalski, James Wheelchan, Jr., Madhu S. Gupta



Microwave Integrated Circuits

Front Row (l-r): Robert A. Weck, Harlan Howe, Jr.
Standing (l-r): John Pierro, Sarjit Bharj, Frank Sullivan

Technical Program Committee



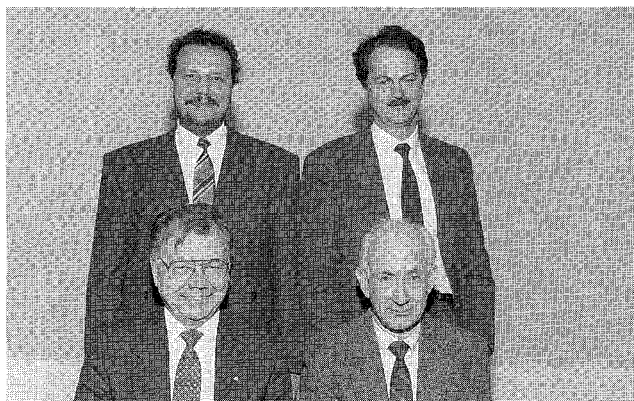
Monolithic Circuits and Modules

Front Row (l-r): Reynold S. Kagiwada, Marvin Cohn, Emil Switzer, David Meharry
Standing (l-r): Natalino Camilleri, Charles Huang, Eliot D. Cohen, Hing-Loi A. Hung, Roger Sudbury, Inder J. Bahl



Millimeter and Submillimeter Wave Technology and Devices

Front Row (l-r): J. W. Dees, Mohammed M. Afsar, James C. Wiltse, Edward C. Niehenke
Standing (l-r): Jeffrey J. Sitterle, Mehran Matloubian, A. J. Gasiewski, R. E. Bryan



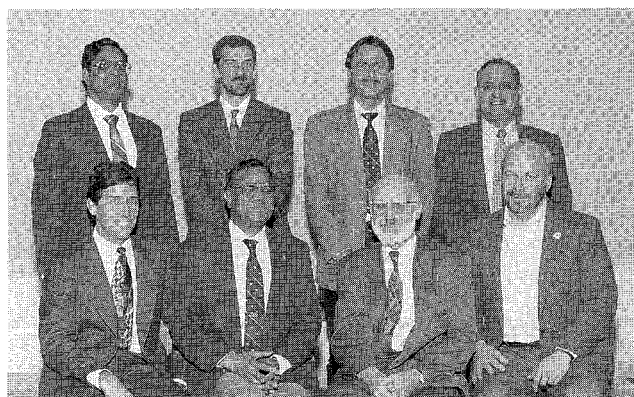
Field Theory

Front Row (l-r): James W. Mink, Felix Schwering
Standing (l-r): Abbas S. Omar, Roberto Sorrentino



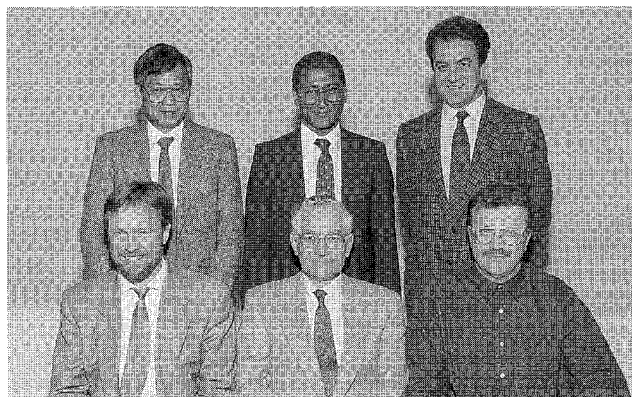
EM Analytical and Numerical Techniques

Front Row (l-r): Martin P. Goetz, James C. Rautio
Standing (l-r): Peter Russer, Wolfgang Hoefer, N. G. Alexopoulos



CAD Techniques and Modeling

Front Row (l-r): Lawrence Dunleavy, K. C. Gupta, Ingo Wolff, S. E. Sussman-Fort
Standing (l-r): Arvind K. Sharma, Mauro Mongiardo, Rolf H. Jansen, Barry S. Perlman



Guided Waves and Propagation Characteristics

Front Row (l-r): Ruediger Vahldieck, Arthur A. Oliner, Michael Dydyk
Standing (l-r): S. T. Peng, Samir M. El-Ghazaly, P. Lampariello

Technical Program Committee



Measurement Theory and Techniques

Front Row (l-r): David Wait, Stephen F. Adam, Mario A. Maury, Jr.
Standing (l-r): Harry M. Cronson, Roger D. Pollard, John T. Barr



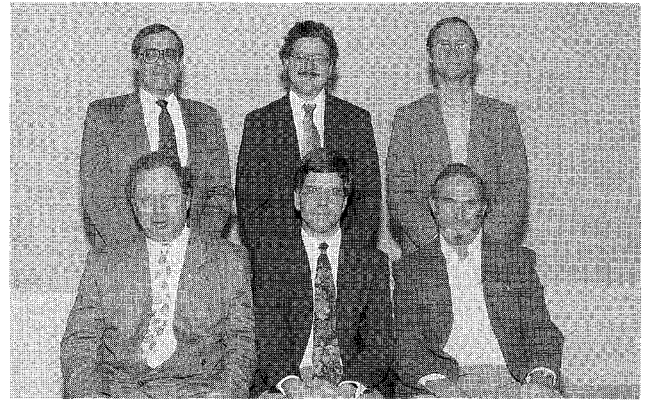
Microwave and Communication Systems

Front Row (l-r): Klaus D. Breuer, John B. Horton, George L. Heiter
Standing (l-r): Ferdo Ivanek, David N. McQuiddy, Jr., J. K. McKinney, B. D. Geller



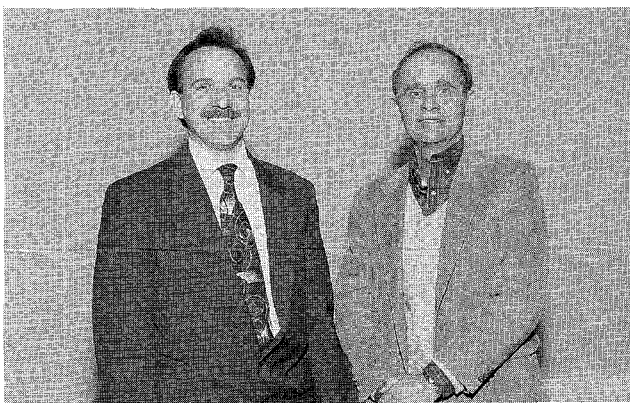
Lightwave Technology and Techniques

Front Row (l-r): Harold Sobol, Norman R. Dietrich, Arthur Paoella
Standing (l-r): Hiroyo Ogawa, Alwyn J. Seeds, Chi H. Lee, Peter R. Herczfeld



Superconductivity

Front Row (l-r): Aly Fathy, Jeffrey Pond, Erwin F. Belohoubek
Standing (l-r): Barry E. Spielman, Charles Jackson, Richard Withers



New Materials and Microwave Techniques; Digital Signal Processing

(l-r): Robert Bayruns, William K. Alverson

Not Pictured:

Manufacturing, Production and Packaging Methods

Bert Berson, Terry Cisco, Robert Kemerley, Douglas Maki, Tom S. Taylor, Kurt A. Zimmerman

Phased Arrays and Active Arrays

J. Dayton Adams, James A. Fuller, H. George Oltman, Jr., David Rutledge, Richard A. Sparks, David C. Zimmerman

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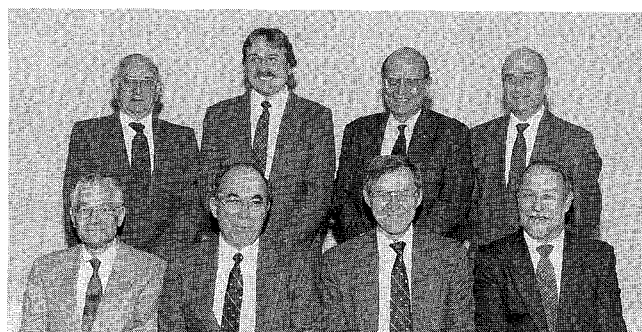
R.E. (Skip) Bryan	Robert A. Moore	John Wassel	Roger D. Pollard
Eliot D. Cohen	Mario A. Maury, Jr.	E. Yamashita	Roger W. Sudbury
Rolf H. Jansen	Daniel G. Swanson	E. James Crescenzi, Jr.	Glenn R. Thoren
Barry S. Perlman	Jorg E. Raue	Derry P. Hornbuckle	
Stephen A. Maas	Peter W. Staecker	Ed A. Rezek	

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1991	Ferdo Ivanek
1990	Tatsuo Itoh

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Seymour B. Cohn	Theodore S. Saad	Leo Young



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 Standing (l-r): Rudolf E. Henning, Manfred J. Schindler, Roger Sudbury, Daniel J. Masse



Adcom (2)

Front Row (l-r): Rolf H. Jansen, Eliot D. Cohen, Glenn R. Thoren, Stephen F. Adam
 Standing (l-r): Tatsuo Itoh, Ed A. Rezek, Barry E. Spielman, Barry S. Perlman



Adcom (3)

Front Row (l-r): John B. Horton, Mario A. Maury, Jr., Bert L. Berson, V. F. Hanna
 Standing (l-r): Robert A. Moore, Reynold S. Kagiwada, Andre VanderVorst, R. E. (Skip) Byran



Adcom (4)

Front Row (l-r): Roger D. Pollard, H. George Oltman, Jr., Vladimir G. Gelnovatch, Daniel G. Swanson
 Standing (l-r): Ferdo Ivanek, Jorg E. Raue, Theodore S. Saad, Derry R. Hornbuckle