

## Contributors



**Gary D. Alley** (S'70-M'72) was born in Kansas City, Mo., on August 12, 1943. He received the B.S., M.S., and Ph.D. degrees in electrical engineering from the University of Kansas, Lawrence, in 1966, 1967, and 1972, respectively.

In 1967 he joined Bell Laboratories, Whippny, N. J., as a member of the Technical Staff, where he was involved in the design of thin-film microwave integrated circuits. In June 1970, he took a leave of absence from Bell Laboratories and returned to the University of Kansas where he worked in the area of microwave solid-state devices. In July 1972, he returned to Bell Laboratories, North Andover, Mass., where he is engaged in the design of microwave integrated circuits.

Dr. Alley is a member of Tau Beta Pi and Eta Kappa Nu.



McGill University in 1967 and 1969, respectively, both in numerical solution of field problems.

From 1963 to 1966 he worked in the Royal Canadian Air Force in the development of antisubmarine warfare systems. In 1969 he joined Bell Laboratories, Holmdel, N. J., in the Computer-Aided Analysis Department where he was engaged in development of algorithms for nonlinear circuit analysis.

From 1971 to 1973 he served as Associate Editor of the IEEE TRANSACTIONS ON CIRCUIT THEORY. He is currently with Bell Laboratories where he supervises a group responsible for nonlinear analysis and the operation of the Holmdel transmission systems development computing facility.



**Ronald F. Bauer** (M'60) was born in Spokane, Wash., on January 17, 1937. He received the B.S. degree from Santa Clara University, Santa Clara, Calif., in 1959, the M.S. degree from Rensselaer Polytechnic Institute, Troy, N. Y., in 1961, and the Ph.D. degree from Massachusetts Institute of Technology, Cambridge, in 1966, all in electrical engineering.

From 1966 to 1972 he was an Assistant Professor in the Department of Electrical Science and Engineering at the University of California, Los Angeles. From 1968 to 1969 he was on leave at TRW Systems, Redondo Beach, Calif. Since 1972 he has been with the M.I.T. Lincoln Laboratory, Lexington, Mass. His chief interests have been high-frequency and microwave circuits, computer-aided network analysis and design, and network sensitivity.

Dr. Bauer is a member of Sigma Xi and Tau Beta Pi.



**Flavio Bonfatti** (S'73) was born in Cavezzo, Modena, Italy, on February 28, 1946. He received the degree in electronic engineering from the University of Bologna, Bologna, Italy, in 1970.

Since 1970 he has been with the Man-Machine Interaction Center (CIOC), the Italian Research Council (CNR), the School of Engineering, University of Bologna. His research activity has been primarily in computer-aided circuit design.

Mr. Bonfatti is a student member of the Italian Electrotechnical and Electronic Association.



**Christakis Charalambous** (S'72) was born in Peristeronari, Nicosia, Cyprus, on July 6, 1945. He received the B.Sc. degree (First Class Honors) in electronics and electrical engineering from the University of Surrey, Surrey, England, in 1969. In September 1970, he joined the Department of Electrical Engineering, McMaster University, Hamilton, Ont., Canada as an M.Eng. student. He was admitted to Ph.D. studies without having completed the master's program. In May

1973, he received the Ph.D. degree. By special permission from the Faculty Committee on Graduate Curriculum and Policy, he was allowed to finish the Ph.D. in approximately 2½ years beyond the B.Sc.

He currently holds a National Research Council of Canada Postdoctorate Fellowship, and he is with the Department of Combinatorics and Optimization, University of Waterloo, Waterloo, Ontario, Canada. His main research interests are in the areas of unconstrained optimization, nonlinear programming, integer programming, approximation theory, and their applications in computer-aided circuit and system design.



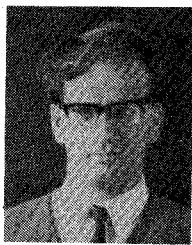
**Zoltan J. Csendes** (S'67-M'74) was born on May 16, 1946. He received the B.S.E. degree in science engineering from the University of Michigan, Ann Arbor, in 1968, and the M.Eng. and Ph.D. degrees from McGill University, Montreal, P. Q., Canada, in 1970 and 1973, respectively, both in electrical engineering.

From 1968 to 1969 he was with the Nuclear Physics Group in the Foster Radiation Laboratory, McGill University, and joined the Department of Electrical Engineering at McGill in 1969. He is currently a Professional Associate in Electrical Engineering at McGill University, working on the development of computational methods for the solution of electromagnetic field problems.

Dr. Csendes is a member of Sigma Xi, Tau Beta Pi, and Phi Kappa Phi.



**Ivan A. Cermak** (S'68) received the B.Eng. degree in electrical engineering from McGill University, Montreal, P.Q., Canada, in 1963, and the M.Eng. and Ph.D. degrees in electrical engineering from



**P. Daly (M'70)** was born in Ayr, Scotland, on September 13, 1937. He received the B.Sc. degree in electrical engineering in 1959 and the Ph.D. degree in 1962, both from Glasgow University, Glasgow, Scotland. After completing his studies he was appointed to a two-year research fellowship at the California Institute of Technology, Pasadena. He then worked for a year in the Department of Mathematics at Glasgow University before undertaking research fellowships for one year in the Technische Hochschule, Aachen, Germany, and for a further year in the Laboratory for Electromagnetic Theory in Copenhagen, Denmark. Since 1967 he has been a Lecturer in the Department of Electrical and Electronic Engineering at the University of Leeds, Leeds, England.



**Edward Della Torre (S'53-A'55-M'57-SM'65)** was born in Milan, Italy, on March 31, 1934. He received the B.E.E. degree cum laude from the Polytechnic Institute of Brooklyn, Brooklyn, N. Y., in 1954, the M.S. degree in electrical engineering from Princeton University, Princeton, N. J., in 1956, and the M.S. degree in physics from Rutgers University, New Brunswick, N. J., in 1961. He was awarded the Eng.Sc.D. in electrical engineering from Columbia University, New York, N. Y., in 1964.

In 1956 he became a member of the faculty of the Department of Electrical Engineering, Rutgers University. He joined the Fundamental Memory Components Department, Bell Laboratories, Murray Hill, N. J., in 1967. He has been associated part-time with the Western Electric Company, New York, N. Y., Minneapolis-Honeywell Corporation, Beltsville, Md., Radio Corporation of America, David Sarnoff Research Center, Princeton, N. J., and the American Standard Research Laboratory, Piscataway, N. J. In 1968 he was appointed Associate Professor of Electrical Engineering at McMaster University, Hamilton, Ont., Canada, where he is presently Professor and Chairman of the Electrical Engineering Department. He has been primarily interested in research on the problems of magnetic materials as applied to memory systems.

Dr. Della Torre is a member of Sigma Xi and Eta Kappa Nu.



**Shunichiro Egami (M'69)** was born in Kurume City, Fukuoka, Japan, on September 5, 1941. He received the B.E.E. and M.E.E. degrees from the University of Kyushu, Fukuoka, Japan, in 1964 and 1966, respectively.

In 1966 he joined the Electrical Communication Laboratories, Nippon Telegraph and Telephone Public Corporation, Yokosuka-shir, Japan. During his first three years there, he worked on the development of the low noise mixers and microwave integrated circuits for the 7-GHz 2700Ch and 11-GHz short-haul radio-relay system. From 1969 to 1972 he worked for the design of 20-GHz wideband parametric amplifiers. Now, he is engaged in the design of the earth station for the lower millimeter-wave satellite communication.



**Menahem Friedman** was born in Israel in 1940. He received the M.Sc. degree in mathematics from the Hebrew University, Jerusalem, Israel, in 1962 and the Ph.D. degree from the Weizmann Institute of Sciences, Rehovoth, Israel, in 1967.

From 1962 to 1964 he served in the Israeli Army in the Computer Department. From 1967 to 1969 he worked in the Department of Mathematics, University of Minnesota, Minneapolis. Since then he has been at the Nuclear Research Centre, Beersheba, Israel, and the University of the Negev (Technion), Haifa, Israel, with the exception of one year (1972-1973) spent as a Postdoctoral Fellow at the University of Manitoba, Winnipeg, Man., Canada.



**William J. Getsinger (S'48-A'50-M'55-SM'69)** was born in Waterbury, Conn., on January 24, 1924. He received the B.S. degree from the University of Connecticut, Storrs, in 1949, and the M.S. degree and the degree of Engineer in 1959 and 1961, respectively, from Stanford University, Stanford, Calif., all in electrical engineering.

Since 1950 he has worked in the field of microwave components at Technicraft Laboratories, the Westinghouse Electric Company, Stanford Research Institute, and the M.I.T. Lincoln Laboratory. In 1969 he joined COMSAT Laboratories, Clarksburg, Md., where he is currently Manager of the Microwave Circuits Department. In computer-oriented microwave work, he directed the development of computer programs for the automatic design and performance analysis of parametric amplifiers, and the development of GCP, a conversational automatic microwave circuit analysis program.

Mr. Getsinger was Guest Editor of the IEEE TRANSACTIONS ON MICROWAVE THEORY AND TECHNIQUES (SPECIAL ISSUE ON COMPUTER-ORIENTED MICROWAVE PRACTICES), Aug. 1969. He is a member of the S-MTT Technical Committee on Computer-Oriented Microwave Practices.



**René J. M. Govaerts (S'68-M'70)** was born in Louvain, Belgium, on January 30, 1937. He received the electrical engineering degree in 1961 and the Ph.D. degree in applied sciences for work on computer approximation for loaded waveguide structures in 1971, both from the Catholic University of Louvain, Heverlee, Belgium.

In 1963 he joined the Electronic Research Laboratory of the Catholic University of Louvain as a Research Assistant. Since 1965 he has been doing research work in the microwave field, and since 1971 he has been an Assistant Professor at the Catholic University of Louvain. He is currently interested in minicomputer applications in the telecommunications field.



**Konrad Grüner** was born in Munich, Germany, on July 9, 1939. He received the Diplom-Ingenieur degree in electrical engineering and the Doktor-Ingenieur degree, both from the Technical University of Munich, Munich, Germany, in 1964 and 1970, respectively.

Since 1964 he has been with the Institut für Flugfunk und Mikrowellen, Deutsche Forschungs und Versuchsanstalt für Luft und Raumfahrt, Oberpfaffenhofen, Germany,

where he has mainly been concerned with microwave-antenna problems for different applications and microwave-radiometry systems.



**George I. Haddad** (S'57-M'61-SM'66-F'72), for a photograph and biography please see page 78 of the January 1974 issue of this TRANSACTIONS.



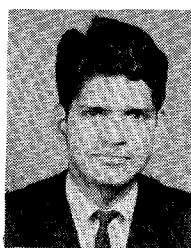
**Karl Hartmann** (S'71-M'74) was born in Henggart, Kanton Zurich, Switzerland, on March 12, 1944. After one year of study at Balzers AG (high vacuum technique and thin films), Fuerstentum, Liechtenstein, and Faselec AG (semiconductor), Zurich, he received the Diploma in electrical engineering from the Swiss Federal Institute of Technology, Zurich, Switzerland, in 1970.

In 1970 he joined the Department of Advanced Electrical Engineering, Swiss Federal Institute of Technology, doing research work on a project connected with the small-signal behavior and noise properties of microwave bipolar transistors up to 12 GHz and on computer optimization of electronic circuits. His Ph.D. dissertation, "Computer simulation of linear noisy two-port circuits with special consideration of the bipolar transistor up to 12 GHz," was accepted on July 19, 1973 at the Swiss Federal Institute of Technology. He is now with Brown Boveri Research Center, Daettwil, Switzerland.



**Marion E. Hines** (S'46-A'47-M'50-SM'60-F'68) was born in Bellingham, Wash., on November 30, 1918. He received the B.S. degree in applied physics and the M.S. degree in electrical engineering from the California Institute of Technology, Pasadena, in 1940 and 1946, respectively.

From 1940 to 1945 he served as a Weather Officer with the U.S. Air Force. From 1946 to 1960 he was with the Bell Telephone Laboratories, where he worked in research and development of microwave and storage tubes, parametric amplifiers, pulse transmission systems, and tunnel diode amplifiers and oscillators. Currently, he is Vice-President and Technical Director at Microwave Associates, Inc., Burlington, Mass., where he has been active in the development of harmonic-generator-type microwave sources, higher power microwave signal-control devices using diode switch elements, and solid-state microwave oscillators and amplifiers.



**Virendra K. Jha** was born in Ajmer, India, on November 21, 1946. He received the B.Sc. degree from Rajasthan University, Rajasthan, India, in 1964, the B. Tech. degree from the Indian Institute of Technology, New Delhi, India, in 1968, and the M.Eng. degree from McMaster University, Hamilton, Ont., Canada, in 1971.

He worked in the area of computer-aided design at McMaster University. He is presently working at RCA Limited, Montreal, Ste.-Anne-de-Bellevue, P. Q., Canada.



**Peter B. Johns** was born in Newport, Wales, on August 26, 1938. He received the B.Sc. Eng. degree in electrical engineering and the M.Sc. degree in physics both from London University, London, England, in 1964 and 1966, respectively.

From 1964 to 1967 he was with the British Post Office Research Department at Dollis Hill, London, where he worked on modulation methods and interference problems associated with communication-satellite systems. In

1967 he was appointed Lecturer in the Department of Electrical and Electronic Engineering, the University of Nottingham, Nottingham, England, where his research interest has been in electromagnetic wave propagation and numerical analysis of waves. He is the author of a textbook on communication systems analysis.

Dr. Johns is a member of the Institution of Electrical Engineers (London).



**W. Kinsner** (S'71-M'73) was born in Edinburgh, Scotland, on January 21, 1945. He received the M.Sc. degree in electronics from the Technical University of Wroclaw, Wroclaw, Poland, in 1968.

From 1969 to 1970 he was a member of the faculty staff at the Department of Theoretical and General Electrical Engineering of the Silesian Technical University, Gliwice, Poland, concerned with network theory, electronics and ultrasonics. He is now a graduate

student at McMaster University, Hamilton, Ont., Canada, engaged in the study of magnetic domains and numerical analysis of partial differential equations.



**Auguste A. Laloux** (S'67) was born in Charleroi, Belgium, on May 31, 1945. He received the degree of Electrical Engineer and the Ph.D. degree in applied sciences (electrical engineering) in 1968 and 1973, respectively, both from the Catholic University of Louvain, Belgium.

He held a research and teaching Assistantship from 1968 to 1973 at the Microwave Laboratory of the Catholic University of Louvain. For his dissertation he worked out a

numerical solution for waveguides with inhomogeneous dielectric loads. During the academic year 1967-1968 he was also Chairman of the IEEE Student Branch of Louvain. He is now Assistant Professor at the Catholic University of Louvain.



**Bernard W. Leake** (M'57) was born in London, England, on August 13, 1928. He received the B.Sc. degree in physics and the B.Sc. degree in mathematics from the University of London, London, England, in 1950 and 1951, respectively.

Until 1957 he was with Decca Radar Ltd., London, England. Since 1957 he has been with the Raytheon Company, Wayland, Mass., where he is presently a Principal Staff Engineer in the Raytheon Equipment Division, engaged in the design of microwave solid-state circuits, and applications of computers to the solution of microwave design problems. He holds five patents in the field of microwave engineering. Mr. Leake is a member of the Institute of Physics.

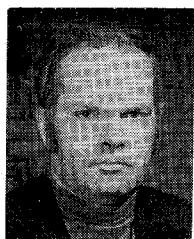


**Charles M. Lee** was born in China on September 2, 1941. He received the B.S. degree from the National Taiwan University, Taiwan, Republic of China, in 1965, the M.S. degree from the University of Cincinnati, Cincinnati, Ohio, in 1968, and the Ph.D. degree from the University of Michigan, Ann Arbor, in 1973.

From 1965 to 1966 he was an Electronic Officer in the Chinese Air Force. From 1968 to 1969 he was with Texas Instruments, Inc., involved with TTL/MSI integrated circuit design. From 1969 to 1973 he was associated with the Electron Physics Laboratory of the University of Michigan involved in solid-state devices research. He has recently joined the staff at Bell Laboratories, Murray Hill, N. J., working on bipolar LSI integrated circuits. Dr. Lee is a member of Sigma Xi.



**Ronald J. Lomax** (M'63-SM'69), for a photograph and biography please see page 79 of the January 1974 issue of this TRANSACTIONS.



**Bruce H. McDonald** (S'62-M'68) was born in Winnipeg, Man., Canada, on May 3, 1942. He received the B.Sc. degree in engineering physics and the M.Sc. degree in computer science, both from the University of Manitoba, Winnipeg, Man., Canada, in 1964 and 1969, respectively. He is currently completing the Ph.D. degree requirements in electrical engineering at the University of Manitoba.

From 1964 to 1966 he was employed first as a Programmer Analyst, and later as a

Project Leader in Mineral Resources by the Government of Saskatchewan Computer Center at Regina. From 1966 to 1968 he worked on a hospital automation project at the Victoria General Hospital in Winnipeg, where he designed and implemented pilot data-acquisition and processing systems. In 1968 he returned to full-time study, involving design and simulation of computer operating systems, and currently the application of digital-computing techniques in the solution of electromagnetic-field problems.

Mr. McDonald was chairman of the Winnipeg section of the IEEE from 1970 to 1971.



**Vito A. Monaco** (M'67) was born in Brindisi, Italy, on September 26, 1932. He received the degree in electrical engineering from the University of Bologna, Bologna, Italy, in 1957.

Since 1958 he has been with the School of Engineering, University of Bologna, where he was an Assistant Professor of Electrical Communication until 1961, when he became an Associate Professor of Radio and Radar Systems and, in 1967, of Applied Electronics.

Currently, he is a Professor of Electronic Engineering. He is also a consultant to Telettra Laboratories, Vimercate, Milan, Italy. His research activity has been primarily in the field of radio electronics and computer-aided circuit design.

Prof. Monaco is a member of the Italian Electrotechnica and Electronic Association. From 1970 to 1972 he was Secretary-Treasurer of the IEEE North-Italy Section.



**Paul Penfield, Jr.** (S'57-M'62-F'72) was born in Detroit, Mich., on May 28, 1933. He received the B.A. degree in physics from Amherst College, Amherst, Mass., in 1955, and the Sc.D. degree in electrical engineering from the Massachusetts Institute of Technology, Cambridge, in 1960.

From 1960 to 1962 he held Ford Foundation Postdoctoral Fellowships, and from 1966 to 1967 a National Science Foundation Senior Postdoctoral Fellowship. In 1966-1967

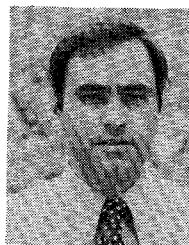
he was an Academic Visitor at Imperial College of Science and Technology, London, England. At present he is a Professor with the Department of Electrical Engineering and Research Laboratory of Electronics, Massachusetts Institute of Technology. He is also a Consultant at the M.I.T. Lincoln Laboratory, Lexington, Mass. His chief interests have been solid-state applications to microwaves, primarily varactors and their applications; conservation theorems for physical systems including plasmas and electron beams; electrodynamics of continuous media, especially the force of electrodynamic origin; noise theory and thermodynamics of nonlinear systems; and computer-aided network analysis and design.

Dr. Penfield is a member of Sigma Xi and the American Physical Society.



**Jadranka R. Popović** was born in Mostar, Yugoslavia, on August 10, 1947. She received the Dipl. Eng. degree in electrical engineering from the University of Belgrade, Belgrade, Yugoslavia, in 1971, and the M.Eng. degree in electrical engineering from McMaster University, Hamilton, Ont., Canada, in 1973.

Since 1972, she has been working as a research assistant with the Communications Research Laboratory of McMaster University. Her current work is in computer-aided circuit and system design.



**Albert E. Ruehli** (M'65) was born in Zürich, Switzerland, on June 22, 1937. He received the Telecommunication Engineering degree from Abend Technicum, Zürich, Switzerland, in 1963, and the Ph.D. degree in electrical engineering from the University of Vermont, Burlington, in 1972.

From 1958 to 1963 he worked at the IBM Research Laboratory, Zürich, Switzerland, on thin magnetic film memories. In 1963 he transferred to the IBM Thomas J. Watson Research Center, Yorktown Heights, N. Y., where he worked in the area of semiconductor circuits and devices. In 1966 he moved to IBM, Burlington, where he was associated with the mathematical and engineering analysis group at the Components Division Laboratory. Since 1971 he has been a Research Staff Member at the IBM Thomas J. Watson Research Center, where he is in the Circuit and Computer Design Automation Group developing new techniques for analysis of the electrical parameters of computer hardware technologies.



**Edgar Sánchez-Sinencio** (S'72) was born in Mexico City, Mexico on October 27, 1944. He received the degree in communications and electronic engineering (professional degree) from the National Polytechnic Institute of Mexico, Mexico City, in 1966 and the M.S. degree in electrical engineering from Stanford University, Stanford, Calif., in 1970. He did his doctoral studies at the University of Illinois, Urbana, from February 1970 to August 1973.

During his graduate studies he was awarded with fellowships from the United Nations Educational, Scientific, and Cultural Organization, the Mexican Atomic Energy Commission, and the Consejo Nacional de Ciencia y Tecnología of Mexico. From January 1965 to March 1967 he worked with the Mexican Atomic Energy Commission, as a Design Engineer. In April 1967 he joined the Petroleum Institute of Mexico, where he was associated with the design of instrumentation equipment until August 1967. He worked as a Research Assistant at the Coordinated Science Laboratory at the University of Illinois from September 1971 to August 1973. He is currently with Central Research Laboratories, Nippon Electric Company, Ltd., Kawasaki, Japan.



**P. Silvester** (S'60-M'64) was born on January 25, 1935. He received the B.S. degree in electrical engineering from the Carnegie Institute of Technology, Pittsburgh, Pa., the M.A.Sc. degree from the University of Toronto, Toronto, Ont., Canada, and the Ph.D. degree in electrical engineering from McGill University, Montreal, P. Q., Canada, in 1956, 1958, and 1964, respectively.

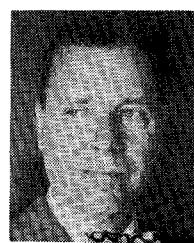
During 1967 to 1968 he spent a year at the Imperial College of Science and Technology, London, England, doing research work in numerical analysis of transmission-line conductors and waveguides. At present he is Professor of Electrical Engineering at McGill University. He is the author of a textbook on electromagnetic fields and is presently teaching courses and conducting research in electromagnetic theory and numerical analysis. His current research interests center on the development of efficient computational algorithms for solution of electromagnetic field problems by numerical methods, with emphasis on guided-wave problems and electric power devices.

Dr. Silvester is a member of the Society for Industrial and Applied Mathematics, Sigma Xi, the Tensor Society of Great Britain, and is a Registered Engineer in the Province of Quebec.



**Harold E. Stinehelfer, Sr.** (S'46-M'52-SM'59) was born in Bucyrus, Ohio, on April 22, 1924. He received the B.E.E. and M.E.E. degrees from the Polytechnic Institute of Brooklyn, Brooklyn, N. Y., in 1948 and 1951, respectively.

From 1948 to 1953, he was with the Radio Research Division of the Western Union Telegraph Company. From 1953 to 1955, he was Chief Engineer of Frequency Standards, Inc., and from 1955 to 1966, he was a member of the Technical Staff of Bell Telephone Laboratories. In August 1966, he joined the Semi-Conductor Division of Microwave Associates, Inc., of Burlington, Mass., as a Senior Engineer, and since 1969, he has been Manager of the Computer Science Department.



**Max J. O. Strutt** (SM'46-F'56) was born in Surakarta, Java, on October 2, 1903. He attended the University of Munich, Munich, Germany, and the Institute of Technology, Munich. He received the M.Sc. and D.Sc. degrees (cum laude) in 1926 and 1927, respectively, from the Institute of Technology, Delft, The Netherlands.

He was a Research Engineer at the N. V. Philips Company, Ltd., Eindhoven, The Netherlands, from 1927 to 1948. Since 1948

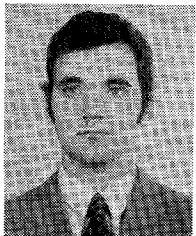
he has been Professor and Director of the Department of Advanced Electrical Engineering, Swiss Federal Institute of Technology, Zurich, Switzerland, and from 1958 to 1960, Chairman of the Division of Electrical Engineering there. In 1961, 1962, and 1963 he was Visiting McKay Professor of Electrical Engineering at the University of California, Berkeley.

Dr. Strutt holds more than seventy United States patents on electron tubes and circuits, especially VHF and UHF. Among his awards are the Doctor Honoris Causa, conferred by the Institute of Technology, Karlsruhe, Germany, in 1950, and the Karl Friedrich Gauss Medal of the Society of Sciences, Brunswick, Germany, received in 1954. He was awarded a Senior Foreign Scientist Fellowship by the National Science Foundation in Washington, D. C., in 1966. In addition, he is a member of the Swiss Society of Electrical Engineers, the German Society of Electrical Engineers, the Swiss Society of Sciences at Berne, the German Physical Society, the Swiss Mathematical Society, and the Zurich Physical Society. He is an honorary member of the Society of Sciences at Brunswick (1955), the International Television Committee (1956), the Electronics Association of Japan (1966), and the Institute of Electronics and Communications Engineers of Japan (1967).



**Harry E. Talley** (SM'64) was born in Blue Springs, Mo., on August 8, 1924. He received the B.S. degree from Rockhurst College, Kansas City, Mo., in 1949, and the M.S. and Ph.D. degrees in physics from the University of Kansas, Lawrence, in 1953 and 1954, respectively.

From 1954 to 1964 he was employed by Bell Laboratories where he was responsible for a group engaged in the development of a variety of germanium and silicon devices. In 1961-1962 he was a Visiting Professor at Lehigh University. In 1964 he joined the Electrical Engineering Department of the University of Kansas as Associate Professor and in 1968 he assumed his present position of Professor of Electrical Engineering. His research activities have been devoted to the investigation of various aspects of the properties of semiconductor devices and materials.



**Paolo Tiberio** (M'73) was born in Rome, Italy, on December 16, 1943. He received the degree in electronic engineering from the University of Pisa, Pisa, Italy, in 1967.

Since 1968 he has been with the School of Engineering, University of Bologna, Bologna, Italy, where he is currently an Associate Professor. During 1971 he was a NATO Visiting Fellow at the System Engineering Laboratory, University of Michigan, Ann Arbor. At present he is responsible for Section

1 of the Man-Machine Interaction Center of the Italian Research Council, School of Engineering, University of Bologna. His research activity has been primarily in the field of computer-aided circuit design.

Dr. Tiberio is a member of the Italian Electrotechnical and Electronic Association.



**Timothy N. Trick** (S'63-M'65) was born in Dayton, Ohio, on July 14, 1939. He received the B.S. degree in electrical engineering from the University of Dayton, Dayton, Ohio, in 1961, and the M.S. and Ph.D. degrees from Purdue University, Lafayette, Ind., in 1962 and 1966, respectively. In 1961 he held a Sloan Foundation Fellowship and in 1962 an IBM Fellowship.

From 1963 to 1965 he was an Instructor in the Department of Electrical Engineering at Purdue University. From 1965 to 1970 he was Assistant Professor of Electrical Engineering and Research Assistant Professor at the Coordinated Science Laboratory of the University of Illinois, Urbana-Champaign. In the summers of 1970 and 1971 he was an ASSE-NASA Summer Faculty Fellow. He was an Associate Professor of Electrical Engineering and Research Associate Professor at the Coordinated Science Laboratory, University of Illinois. He is now with the Department of Electrical Engineering, University of California, Berkeley. His current research interests include circuit analysis and design, numerical methods, and digital processing of signals.

Dr. Trick is an Associate Editor of the IEEE TRANSACTIONS ON CIRCUITS AND SYSTEMS and a member of Sigma Xi, Tau Beta Pi, and Pi Mu Epsilon.



**André S. Vander Vorst** (M'64-SM'68) was born in Schaerbeek, Brabant, Belgium, on October 22, 1935. He received the degree of Electrical and Mechanical Engineer in 1958 and the Ph.D. in applied sciences in 1965, both from the Catholic University of Louvain, Belgium, and the S.M. degree in electrical engineering in 1965 from the Massachusetts Institute of Technology, Cambridge.

From 1958 to 1962 he held an Assistantship at the Catholic University of Louvain. In 1962 he became an Assistant Professor there, working on fast switching of magnetic cores. During the 1964-1965 academic year he specialized in microwaves at Massachusetts Institute of Technology and during the 1965-1966 academic year he was a Research Associate at the Stanford Radio-Astronomy Institute, Stanford, Calif., both under a NATO fellowship. In 1966 he returned to the Catholic University of Louvain to start a microwave laboratory. The interest of this laboratory is the study of propagation in inhomogeneous media, especially waveguides, open or closed, both by exact and approximate techniques with emphasis on computer-aided solutions, as well as the study of the influence of rain and climate on line-of-sight microwave propagation. Since 1972 he has been Professor of Electrical Engineering at the Catholic University of Louvain, and he is presently Dean of Engineering there.

Dr. Vander Vorst is a member of the Belgian Committee of the International Scientific Radio Union, the Electromagnetic Wave Propagation Panel of the Advisory Group for Aerospace Research and Development, the Société Royale Belge des Ingénieurs de Télécommunication, the Association Belge des Ingénieurs et Techniciens en Aéronautique, and the IEEE Region 8 Committee.



**Dan Varon** (S'62-M'66) was born in Tel-Aviv, Israel, on July 24, 1935. He received the B.S. and Dipl.Ing. degrees in electrical engineering from the Technion, Israel Institute of Technology, Haifa,



Israel, in 1957 and 1961, respectively. He received the M.S. degree in electrophysics from the Polytechnic Institute of Brooklyn, Brooklyn, N. Y., in 1963, and the Eng.Sc.D. degree from New York University, New York, in 1965.

In the summer of 1957 he visited Van Der Heem, N.V., The Hague, Netherlands, where he participated in the design of marine communication equipment. From 1961 to 1963 he was a Research Fellow at the Microwave

Research Institute, N. Y., where he worked on lumped network synthesis. Between 1963 and 1965 he was a Teaching Fellow at New York University. From 1965 to 1969 he was a member of the Technical Staff at Bell Laboratories, Whippany, N. J., where he was engaged in exploratory work on microwave transmission and phased array antennas. From 1969 to 1971 he was Manager of Automated Engineering at Tymshare, Inc., where he conducted development of software for computer-aided design. Since 1971 he has been with the Raytheon Company, Wayland, Mass., where he continues to be active in the field of computer-aided design and other software systems.

Dr. Varon is a member of Eta Kappa Nu and Sigma Xi. He is currently serving as chairman of the IEEE Microwave Theory and Techniques Society Technical Committee on Computer-Oriented Microwave Practices.



**Alvin Wexler** (S'56-M'66) was born in Winnipeg, Man., Canada, on July 14, 1935. He received the B.Sc. degree in electrical engineering from the University of Manitoba, Winnipeg, Man., Canada, in 1958. He attended Imperial College, London, England, on an Athlone Fellowship and a Metropolitan Vickers Bursary, and received the Diploma of Imperial College, and the Ph.D. degree from the University of London, London, England.

His research concerned propagation in waveguides loaded with resistive films and ferrites. While in the United Kingdom he was an Assistant Editor of *Science Abstracts*, and later worked for International Computers and Tabulators, Ltd., London, as a Technical Consultant to industry. He returned to the University of Manitoba in August 1966, as a Ford Foundation Fellow, and is now an Associate Professor there. He is President of Tasco (Computing Services). He is presently on sabbatical at the University of Manchester, Institute of Science and Technology, Manchester, England.

Dr. Wexler is a member of the Association of Professional Engineers of the Province of Manitoba, the S-MTT Technical Committee on Computer-Aided Design of Microwave Circuits, the Editorial Review Board, and is a past member of the Administrative Committee of the Microwave Theory and Techniques Society. He is a Fellow of the Royal Society of Arts.