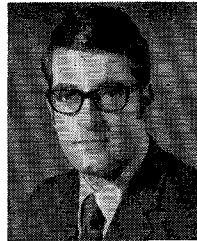


## Contributors



**Paul Chorney** (S'55-M'62) was born in Providence, R. I., on May 10, 1934. He received the B.S. degree in engineering from Brown University, Providence, R. I., in 1956. From 1956 to 1961 he attended the Massachusetts Institute of Technology, Cambridge, where he received the M.S., E.E., and Sc.D. degrees in electrical engineering in 1958, 1959, and 1961, respectively.

From 1957 to 1961 he was a Research Assistant at the Microwave Laboratory of the Research Laboratory of Electronics at M.I.T., where he was engaged in theoretical work concerning microwave tubes, plasmas, and waveguides. From 1960 to 1968 he was a member of the research staff at Microwave Associates, Inc., Burlington, Mass., where his work primarily involved experimental and theoretical studies of microwave devices utilizing plasmas and electron beams; he was Director of Tube Research there from 1964 to 1968. Also, from 1966 to 1968 he served as Guest Professor of Electrical Engineering at Northeastern University, Boston, Mass. From 1968 to 1969 he held the position of Visiting Associate Professor in the Electrical Sciences Group of the Division of Engineering at Brown University, where his duties involved lecturing and research on electron devices and electromagnetic theory. Since 1969 he has been with Unitrode Corporation, Watertown, Mass., where he is chiefly concerned with semiconductor microwave control devices; he is presently Director of Applications Engineering. He has been granted several patents and has published several articles.

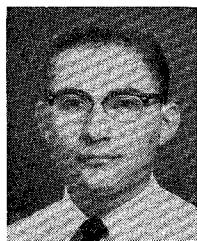
Dr. Chorney is a member of Tau Beta Pi and Sigma Xi.



**John Graham Gardiner** was born on May 24, 1939. He received the B.Sc. and Ph.D. degrees in electrical engineering from the University of Birmingham, Birmingham, England, in 1961 and 1964, respectively.

His doctoral work was on circuits with periodically varying parameters. He subsequently held a Racal Post Doctoral Research Fellowship and worked for the Racal Group in various capacities before joining the University of Bradford, Bradford, England, in 1968. He currently leads a research team working on a variety of problems on circuits with severely nonlinear parameters.

Dr. Gardiner is an associate member of the Institution of Electrical Engineers and a graduate member of the Institution of Electronic and Radio Engineers.



**Samir Ibrahim Ghobrial** was born on March 1, 1945. He received the B.Sc. degree in electrical engineering from the University of Khartoum, Khartoum, Sudan, in 1969. He holds the M.Sc. degree and is presently engaged in work towards the Ph.D.

He is currently a Senior Scholar of the University of Khartoum undertaking research at the University of Bradford, Bradford, England, on a British Council Research Studentship. He previously worked on

paramp distortion and is now working on propagation of orthogonally polarized waves.

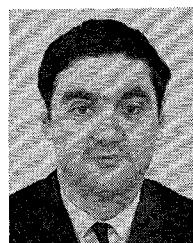
Mr. Ghobrial is a graduate member of the Institution of Electronic and Radio Engineers.



**Wilhelm Jutzi** was born in Bad Kreuznach, Germany, on May 5, 1933. He studied at the University of Grenoble, Grenoble, France, in 1955. He received the B.S. and the M.S. degrees in 1958 and the Ph.D. degree in 1962, in electrical engineering, from the Technical University of Darmstadt, Darmstadt, Germany.

In 1961 he joined the Thin Magnetic Film Memory Group of the IBM Research Laboratory near Zurich, Switzerland. He was engaged in the design, construction, and testing of high-speed memories with nondestructive readout. During 1966-1967 he worked on a temporary basis in the Thin Magnetic Film Memory Group of the IBM Development Laboratory, Hursley, England. In 1966 work on applications of the metal semiconductor field-effect transistor (MESFET) started in the Zurich laboratory, with special emphasis on ultra-broadband distributed amplifiers. Later he developed directional filters and equalizers with MESFETs in the microwave range. In 1968 he investigated integrated cells of bipolar monolithic memories in the advanced development group of the IBM Development Laboratory, Böblingen, Germany. He has rejoined the Zurich IBM Research Laboratory, working on very high packing density MESFET memory chips.

Dr. Jutzi is a member of the NTG (German Society on Communications). In 1963 he received the NTG Award for his work on short inhomogeneous transmission lines as microwaves absorbers.



**Thespis P. Pantzaris** was born in Nicosia, Cyprus, on December 17, 1944. He received the B.Sc. (Hons.) degree in electrical engineering in 1967, and the Ph.D. degree in 1971 from the University of Leeds, Leeds, England.

From 1967 to 1970 he was a research assistant at the University of Leeds working on the topic of microwave network synthesis. He is currently with Plessey Telecommunications Ltd., Liverpool, England, concerned with the development of a stored program controlled telephone system.



**Paul Penfield, Jr.** (S'57-M'62) 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, Cam-



bridge, in 1960. At present he is a Professor of Electrical Engineering at the Massachusetts Institute of Technology. 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. He has held Ford Foundation Postdoctoral Fellowships (1960 to 1962) and a National Science Foundation Senior Postdoctoral Fellowship (1966 to 1967). During the year 1966-1967 he was an academic visitor at Imperial College of Science and Technology, London, England.

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



**Sean O. Scanlan** (M'62-SM'66) was born in Dublin, Ireland, in 1937. He received the B.E. and M.E. degrees from the National University of Ireland, University College, Dublin, in 1959 and 1964, and the Ph.D. degree from the University of Leeds, Leeds, England, in 1966.

From 1959 to 1963 he worked at Mullard Research Laboratories, Redhill, Surrey, England, on problems in the network theory and microwave semiconductor areas. In 1963 he joined the Department of Electrical and Electronic Engineering, University of Leeds, where he is now Professor of Electronic Engineering. His research and teaching interests are in circuit theory and microwave solid-state devices.

Dr. Scanlan is a member of the Institution of Electrical Engineers (U. K.) and an associate fellow of the Institute of Mathematics and its Applications (U. K.).