

## Contributors



**Tatyan Auyeung** was born in Canton, China, on February 21, 1947. He received the B.Eng. and M.Eng. degrees in electrical engineering from McGill University, Montreal, P. Q., Canada, in 1969 and 1972, respectively.

He joined the Antenna Laboratory of RCA Limited, Montreal, P. Q., Canada, in 1971, where he was involved in the development of RF components for a variety of antenna feed and microwave systems. He is presently doing development work on high-performance spectrum re-use feed subsystems for satellite communication ground station antennas.



**Madhu-Sudan Gupta** (S'68-M'72) received the M.S. and Ph.D. degrees from the University of Michigan, Ann Arbor, in 1968 and 1972, respectively.

From 1968 to 1972 he carried out research on large-signal and noise characteristics of IMPATT diodes at the Electron Physics Laboratory, and taught in the Department of Electrical and Computer Engineering, University of Michigan. During 1972-1973 he was an Assistant Professor of Electrical Engineering at Queen's University, Kingston, Ont., Canada. He is presently engaged in research on semiconductor microwave devices and noise at the Research Laboratory of Electronics, and is an Assistant Professor in the Department of Electrical Engineering, Massachusetts Institute of Technology, Cambridge.

Dr. Gupta is a member of Eta Kappa Nu, Sigma Xi, and Phi Kappa Phi.



**Arthur Ballato** (S'55-M'59-SM'70) was born in Astoria, N.Y., on October 15, 1936. He received the S.B. degree in electrical engineering from the Massachusetts Institute of Technology, Cambridge, in 1958, the M.S. degree in electrical engineering from Rutgers University, New Brunswick, N.J., in 1962, and the Ph.D. degree in electrophysics from the Polytechnic Institute of Brooklyn, Brooklyn, N.Y., in 1972.

Upon completing his undergraduate work in 1958, he joined what is now the U.S. Army Electronics Technology and Devices Laboratory, U.S. Army Electronics Command, Fort Monmouth, N.J., where his interest in crystal physics originated. Since then he has been involved in studies of the influence of external forces on crystal vibrators, and of the elastic and thermal properties of quartz; more recently he has been concerned with improving the performance of resonators of quartz and other piezoelectric substances for filter applications, and with the precise description and measurement of their equivalent circuit parameters.

Dr. Ballato is a member of the American Physical Society, the Institution of Electrical Engineers (London), and Sigma Xi.



**George I. Haddad** (S'57-M'61-SM'66-F'72) was born in Aindara, Lebanon, on April 7, 1935. He received the B.S.E., M.S.E., and Ph.D. degrees in electrical engineering in 1956, 1958, and 1963, respectively, from the University of Michigan, Ann Arbor.

From 1957 to 1958 he was associated with the Engineering Research Institute of the University of Michigan, where he was engaged in research on electromagnetic accelerators. In 1958 he joined the Electron Physics Laboratory, where he has been engaged in research on masers, parametric amplifiers, detectors, electron-beam devices, and microwave solid-state devices. He held a University of Michigan Research Institute Fellowship for the academic year of 1958-1959 and a sponsored research fellowship for the spring semester of 1959-1960. He served successively as Instructor, Assistant Professor, and Associate Professor in the Electrical Engineering Department from 1960 to 1969. He is presently a Professor and Director of the Electron Physics Laboratory.

Dr. Haddad received the 1970 Curtis W. McGraw Research Award of the American Society for Engineering Education for outstanding achievements by an engineering teacher. He is a member of Eta Kappa Nu, Sigma Xi, Phi Kappa Phi, the American Physical Society, and the American Society for Engineering Education.



**Henry L. Bertoni** (M'67) was born in Chicago, Ill., on November 15, 1938. He received the B.S. degree in electrical engineering from Northwestern University, Evanston, Ill., in 1960, and the M.S. degree in electrical engineering and the Ph.D. degree in electrophysics, both from the Polytechnic Institute of Brooklyn, Brooklyn, N.Y., in 1962 and 1967, respectively.

From 1966 to 1967 he was an Instructor in the Electrophysics Department of the Polytechnic Institute of Brooklyn. In 1967 he joined the faculty of the Electrophysics Department, and is currently an Associate Professor. His past research has dealt with the propagation and scattering of electromagnetic waves in anisotropic media and in lossy media. Currently, his interests are in the excitation and guiding of elastic surface waves for microwave acoustics and in integrated optics.

Dr. Bertoni is a member of Commission VI of the URSI, Sigma Xi, Eta Kappa Nu, and Tau Beta Pi.



**M. Zawawi Ismail** was born in Kota Bharu, Kelantan, Malaysia, on December 17, 1946. He received the B.Sc. and Ph.D. degrees in electrical and electronic engineering from the University of Leeds, Leeds, England, in 1969 and 1972, respectively. His research work at Leeds was in the field of filters.

He is currently at the National University (Universiti Kebangsaan) of Malaysia, Kuala Lumpur.



**Ronald J. Lomax** (M'63-SM'69) was born in Stockport, England, on July 18, 1934. He received the B.A. degree in mathematics in 1956, and the M.A. and Ph.D. degrees in applied mathematics in 1960, all from the University of Cambridge, Cambridge, England.

Since 1961 he has been associated with the Electron Physics Laboratory of the University of Michigan, Ann Arbor, currently holding the rank of Professor of Electrical and Computer Engineering. He is currently engaged in research on solid-state microwave devices and the use of computer graphics in undergraduate teaching.

Dr. Lomax is a member of the American Mathematical Society and the Cambridge Philosophical Society.

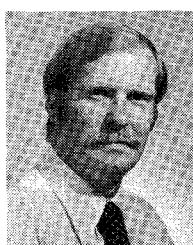


1958, respectively, and the Ph.D. degree in electrophysics from the Polytechnic Institute of Brooklyn, Brooklyn, N.Y., in 1962.

From 1953 to 1956 he was employed as a Research Engineer by the Scientific Department of the Ministry of Defense, Israel, and was engaged in the research and development of microwave systems and components. From 1956 to 1958 he was an Instructor at the Technion—Israel Institute of Technology, where he carried out research and taught

courses in high-frequency techniques. In 1958 he joined the Polytechnic Institute of Brooklyn, where he is presently a Professor of Electrophysics and is conducting research in the area of wave propagation and radiation in electromagnetics, with particular applications to optics and acoustics. Since 1965 he has also served as Consultant to several electronics laboratories. In 1964 he won the Institution Premium, the highest award of the IEE, as coauthor of a paper on "Complex Guided Waves," and in 1967 he shared an IEEE Electronics Section Premium for an article on "The Nature and Optimization of the Ground Wave Excited by Submerged Antennas." The IEEE Antennas and Propagation Group awarded him Special Recognition in 1968 for a paper "On Radio Wave Propagation in Forest Environments." He is presently co-editor (in charge of Electromagnetic Theory, Integrated Optics and Microwave Acoustics) for Applied Physics, published by Springer.

Dr. Tamir is a member of Commission VI of URSI, a Fellow of the Institution of Electrical Engineers (London), a member of the Optical Society of America, and Sigma Xi.



**Graham R. Nudd** (M'67-SM'73) was born in Dorking, England, in 1940. He received the B.Sc. degree and the Ph.D. degree, both in electrical engineering, from the University of Southampton, Southampton, England, in 1962 and 1966, respectively.

From 1962 to 1966 he worked in the area of low-noise microwave circuits and electron optics for traveling-wave tubes, both at the University of Southampton and Mullard Research Laboratories, Salfords, England. In 1966 he joined the Aerospace Systems Division of Bendix Corporation, Ann Arbor, Mich., where he worked on the telecommunications required for the Apollo Lunar Surface Experiment Package (ALSEP). In 1968 he joined Hughes Research Laboratories, Malibu, Calif., where, after some initial work on ion optics for electric propulsion, he has been working in the area of signal processing for radar and communication systems, including the application of millimeter-wave frequencies for high data-rate communication, and surface-wave acoustics for processing wide-band signals.



**John David Rhodes** (M'67) was born in Doncaster, Yorkshire, England, on October 9, 1943. He received the B.Sc. and Ph.D. degrees in electrical engineering from the University of Leeds, Leeds, England, in 1964 and 1966, respectively.

From 1966 to 1967 he was a Research Fellow in the Department of Electrical and Electronic Engineering, University of Leeds. He then joined Microwave Development Laboratories Inc., Natick, Mass., as a Senior Research Engineer. He is currently a Reader at the University of Leeds and also Consultant in Microwave Engineering to Microwave Development Laboratories and Ferranti Ltd., Great Britain.

Dr. Rhodes was awarded the Microwave Prize by the Professional Group on Microwave Theory and Techniques in 1969 and the IEEE Browder J. Thompson Award in 1970.



**Jean Van Bladel** (M'54-SM'56) was born in Antwerp, Belgium, on July 24, 1922. He received the E.E. degree in electrical engineering from Brussels University, Brussels, Belgium, in 1947, and the Ph.D. degree in electrical engineering from the University of Wisconsin, Madison, in 1950.

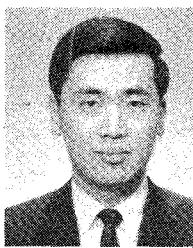
From 1950 to 1954 he was Head of the Radar Laboratory of the MBLÉ factories, Brussels, Belgium, and from 1954 to 1964 he taught at Washington University, St. Louis, Mo., and at the University of Wisconsin. Currently, he is a Professor of Electrical Engineering at the University of Ghent, Ghent, Belgium, and Director of the Laboratory for Electromagnetism and Acoustics, University of Ghent.



**Theodor Tamir** (A'54-M'58-SM'62) was born in Bucharest, Romania, on September 17, 1927. He received the B.S., Dipl. Ing., and M.S. degrees in electrical engineering, all from the Technion—Israel Institute of Technology, Haifa, Israel, in 1953, 1954, and

1954, respectively. He is the Manager of the Opto-Electronics Department, Hughes Research Laboratories, Malibu, Calif. He has conducted studies on gallium arsenide surface-barrier field-effect transistors, local-mode infrared absorption in silicon and gallium arsenide, ion-bombardment junctions, hot-electron emission, tunnel diodes, thin-film dielectrics, silicon and germanium photocells, thin-film transistors, silicon-diffusion technology, silicon bipolar transistors, and paramp diodes. His recent work has been in the propagation of acoustic surface waves in layered structures and in nonlinear acoustic-wave devices.





**Gar Lam Yip** (S'63-M'67) was born in Shanghai, China, on December 18, 1936. He received the B.Sc. (Hon.) degree from the Imperial College of London University, England, in 1960, the M.Sc. degree from Queen's University, Kingston, Ont., Canada, in 1963, and the Ph.D. degree from the University of Toronto, Toronto, Ont., Canada, in 1967, all in electrical engineering.

He was a Teaching Assistant in the Department of Electrical Engineering, Queen's University, from 1961 to 1963, and then at the University of Toronto from 1963 to 1967, in the areas of electronics and electromagnetic theory. In September 1967 he was appointed an Assistant Professor; and since September 1973 he has been an Associate Professor of Electrical Engineering at McGill University, Montreal, P. Q., Canada, where he is teaching and doing research in electromagnetic

theory, microwaves, and optical waveguides. He spent the summer of 1968 at the Plasma Physics Laboratory, RCA Victor Company, Montreal, and in the summers of 1970 and 1971 he held a research appointment at the Radio Communications Section, Communications Research Centre, Ottawa, Canada.

Dr. Yip is a member of Sigma Xi.



**R. L. Zimmerman** (S'48-A'49-M'55), photograph and biography not available at the time of publication.