

# Contributors



**Edward G. Cristal** (S'58-M'61) was born in St. Louis, Mo., on January 27, 1935. He received the B.S. and A.B. degrees in 1957 in electrical engineering and mathematics, respectively, and the M.S. degree in 1958 in

electrical engineering, all from Washington University, St. Louis. He received the Ph.D. degree in electrical engineering in January, 1961, from the University of Wisconsin, Madison.

In March, 1961, he joined the staff of the Electromagnetic Techniques Laboratory at Stanford Research Institute, Menlo Park, Calif. Since that time he has been engaged in research in microwave filters, amplifiers and multiplexers.

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**S. N. Das** (M'62) was born in India. He received the B.S. and M.S. degrees from Calcutta University, Calcutta, India, and the Ph.D. degree from London University, London, England.

He was associated with All India Radio. Subsequently, he taught at Jadavpur University. He was connected with the A.E.I. for two years, and later taught at the Battersea College of Technology, London, England, and also at the University of New Mexico, Albuquerque. Currently he is teaching at the University of Hawaii, Honolulu.

Mr. Das is a member of Sigma Xi and Eta Kappa Nu.

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**James E. Degenford** (S'59-M'64) was born in Bloomington, Ill., on June 11, 1938. He received the B.S., M.S., and Ph.D. degrees in electrical engineering from the University of Illinois, Urbana, in 1960, 1961, and 1964, respectively.

Since 1961, he has been associated with the Ultramicrowave Group at the University of Illinois as a Research Assistant. His research interests lie in the fields of millimeter and submillimeter wave transmission systems and detection techniques.

Dr. Degenford is a member of Eta Kappa Nu, Sigma Tau, and Tau Beta Pi.

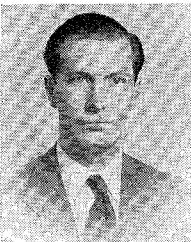


**Doyle A. Ellerbruch** (S'57-M'59) was born in Bloomfield, Neb., on July 29, 1933. He received the B.S.E.E. degree from the University of Wyoming, Laramie, in 1958.

From 1958 to 1959 he was a member of the Boeing Company, Seattle, Wash., and was assigned to the Pilotless Aircraft Division, Target Seeker Group. From 1959 to 1960 he was a member of Land-Air, Inc., Cheyenne, Wyo., and worked on aircraft communication and navigation systems. Since 1960, he has been with the National Bureau of Standards, Boulder, Colo., where he is presently Project Leader for the Microwave Phase Shift and Attenuations Standards Projects.

Mr. Ellerbruch is a member of Sigma Tau and RESA.

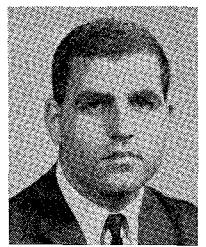
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**Jorge R. Fontana** (S'52-A'53-M'58) was born in Barcelona, Spain, on April 1, 1925. He received the B.S. and M.S. degrees in electrical engineering from the Massachusetts Institute of Technology, Cambridge, in 1952 and 1954, respectively, and the Ph.D. degree in electrical engineering from Stanford University, Stanford, Calif., in 1960.

While at M.I.T., he was a research assistant at the Research Laboratory of Electronics and a teaching assistant with the Electrical Engineering Department. At Stanford, he worked as a Research Assistant and later as a Research Associate at the Microwave Laboratory, and was also a Lecturer and later Acting Assistant Professor in the Electrical Engineering Department. Since September, 1962, he has been an Associate Professor in the Electrical Engineering Department of the University of Minnesota, Minneapolis. His research interests include microwaves, particularly millimeter-wave devices, and quantum electronics. He has done work in microwave systems and tubes, field-emission cathode devices, ferrites, lasers and nonlinear quantum processes for harmonic generation and parametric amplification.

Dr. Fontana is a member of Sigma Xi and the American Association for the Advancement of Science.



**George I. Haddad** (S'57-M'61) was born in Aindara, Lebanon, on April 7, 1935. He received the B.S.E.E. degree in 1956, the M.S.E.E. degree in 1958 and the Ph.D. degree in 1963, all 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 at Michigan where he has been engaged in research on masers and electron-beam devices. He held a University of Michigan Research Institute Fellowship for the academic year of 1958-59 and a sponsored research fellowship for the spring semester of 1959-60. He served as an Instructor in the Electrical Engineering Department from 1960 to 1963 and is presently an Assistant Professor.

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

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**Richard A. Henschke** (S'47-A'50-M'57-SM-59) was born in Lincoln, Neb., on July 23, 1927. He received the B.S. degree and the M.S. degree in electrical engineering from the University of California, Berkeley, in 1948 and 1950, respectively.

In late 1949, he was employed at the Hughes Research and Development Laboratories, Culver City, Calif., where he worked on slot antenna arrays and radomes. In 1954, he joined Cascade Research Corporation, Los Gatos, Calif., where he was engaged in the development of microwave ferrite components. From 1959 to 1962, he was employed at Melabs, Palo Alto, Calif., where he also worked on the development of ferrite components. He joined the Fairchild Semiconductor Research and Development Laboratory in Palo Alto, in 1962, and is currently engaged in the development of microwave varactor multipliers.

Mr. Henschke is an associate member of Sigma Xi.

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**Jan T. DeJager** (M'61) was born in Tieljerksteradeel, The Netherlands, on January 13, 1930. He received the degree in electrical engineering from the Technical



University of Delft, The Netherlands, in 1956.

From 1957 to 1961 he was on the staff of The Netherlands Foundation for Radio Astronomy, where he was responsible for the development of parametric amplifiers for 21 cm galactic hydrogen line work. In 1961 he joined the Technical Staff at the Bell Telephone Laboratories, Murray Hill, N. J., and was concerned with the exploratory development of wide-band, refrigerated parametric amplifiers for *L* band.

Mr. DeJager died on February 6, 1964.

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**D. J. Miller** (M'60) was born in Philadelphia, Pa., on March 10, 1938. He received the B.A. and M.S. degrees in physics from the University of Pennsylvania, Philadelphia, Pa., in 1959 and 1963, respectively.

From 1959 to 1961 he was associated with the Philco Corporation, Philadelphia, Pa., where he was engaged in the design of microwave antennas and associated components. Since 1961, he has been employed in the Applied Research Group of RCA, Camden, N. J., where he has been concerned with the development of solid-state traveling-wave masers.

Mr. Miller is presently the vice chairman of the Philadelphia Chapter of the PTGMMT/AP.

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**L. C. Morris** (M'57) was born in Philadelphia, Pa., on January 5, 1933. He received the B.S. degree in physics and mathematics from LaSalle College, Philadelphia, Pa., in 1956.

From 1956 to 1958 he was associated with the Airborne Systems Activity at RCA, Camden, N. J., where he performed

pulse and digital circuit design for airborne radar systems. From 1958 to the present time he has been associated with the Applied Research Activity of RCA, Camden, N. J., where he has conducted research in the areas of generation, propagation and detection of millimeter waves. He was project engineer on the development of a variety of cavity and traveling wave masers, and is presently an engineering group leader, responsible for research in the area of microwave physics.

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**David H. Paxman** was born in London, England, on September 20, 1934. He was educated at Christ's College, Cambridge, receiving the B.S. degree in 1958. He then joined the Mullard Research Laboratory, Salfords, England, and worked on a number of problems connected with masers and paramagnetic materials, mainly in the field of relaxation behavior.

In 1963 he became a Research Associate in the Electron Physics Laboratory of the University of Michigan, Ann Arbor.

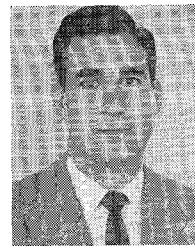
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**Henry J. Riblet** (A'45-M'55-F'58) was born in Calgary, Canada, on July 21, 1913. He received the B.S. and Ph.D. degrees from Yale University, New Haven, Conn., in 1935 and 1939, respectively.

From 1939 to 1941 he taught mathematics at Adelphi College, Garden City, N. Y., and at Hofstra College, Hempstead, N. Y. He joined the Massachusetts Institute of Technology Radiation Laboratory, Cambridge, Mass., in 1942 and at the close of the war was in charge of one of the three developmental sections of the Antenna Group. From 1946 to 1948 he headed the RF group at the Submarine Signal Company, Boston, Mass. He is presently employed by the Microwave Development Laboratories, Inc., Natick, Mass.

Dr. Riblet is a member of the American Mathematical Society and the American Physical Society.



**Murray D. Sirkis** (A'55-M'60) received the B.S. degree in physics from the Massachusetts Institute of Technology, Cambridge, in 1951, and the M.S. and Ph.D. degrees, also in physics, from the University of Illinois, Urbana, in 1952 and 1956, respectively.

While a graduate student at the University of Illinois, he was employed in the Electrical Engineering Department as a Research Assistant and worked with Prof. P. D. Coleman on problems in megavolt electronics. In 1956, he was appointed Research Assistant Professor of Electrical Engineering at Illinois. In 1957, he became Associate Professor of Electrical Engineering at Rutgers University, New Brunswick, N. J. In August, 1960, he returned to the University of Illinois, where he is now Associate Professor of Electrical Engineering and a member of the Ultramicrowave Group.

Dr. Sirkis is a member of the American Physical Society, Sigma Xi, and the Board of Directors of the 1964 National Electronics Conference.

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**William H. Steier** was born in Kendallville, Ind., on May 25, 1933. He received the B.S. degree in electronic engineering from Evansville College, Evansville, Ind., in 1955, and the M.S. and Ph.D. degrees, both in electrical engineering, from the University of Illinois, Urbana, in 1957 and 1960, respectively.

From 1960 until 1962 he was a member of the faculty of the Electrical Engineering Department at Illinois. Since 1962 he has been a member of the Technical Staff of Bell Telephone Laboratories, Crawford Hill, N. J. While on the faculty at Illinois, he was a consultant to Ramo-Wooldridge Research Laboratories and Space Technology Laboratories, Los Angeles, Calif. He has done research in millimeter-wave transmission, detection and generation, and is currently working in optics.