Contributors

Robert N. Assaly was born in Rosetown, Saskatchewan, on June 29, 1929. He received the B.E. and M.Sc. degrees in engineering physics from the University of Saskatchewan, Saskatoon, Canada, in 1951 and 1953, respectively, and the Ph.D. degree from McGill University, Montreal, Canada, where his research project dealt with microwave lens systems.

He worked on the development of LF radio receivers with the National Research Council of Canada, Ottawa, Ontario, in 1958 and 1959. Since 1960, he has been a staff member of M.I.T. Lincoln Laboratory, Lexington, Mass., where he has been engaged in the development of microwave components, more recently, for satellites.

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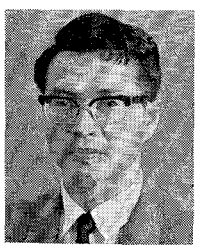

Takashi Azakami M'65) was born in Yamaguchi-ken, Japan, on October 14, 1928. He received the M.S. and Ph.D. degrees in electrical communication engineering from Osaka University, Osaka, Japan, in 1956 and 1963, respectively.

In 1959 he was appointed Research Assistant at Osaka University, where he worked on the design and development of transmission lines, antennas, and components in the microwave and millimeter-wave regions. Since 1964 he has been an Assistant Professor in the Division of Electrical Engineering, Nara Technical College (National).

Dr. Azakami is a member of the Institute of Electrical Communication Engineers of Japan and the Japan Society of Medical Electronics and Biological Engineering.

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Ezekiel Bahar (S'63-M'64) was born in Bombay, India, on May 23, 1933. He received the B.Sc. and M.Sc. degrees in electrical engineering in 1958 and 1960, respectively, from the Technion—Israel Institute of Technology, Haifa, Israel. He received the Ph.D. degree in 1964 from the University of Colorado, Boulder.

He was a research assistant and an instructor at the Technion from 1958 to 1962. In 1962, he joined the faculty of the University of Colorado, where he worked as a research associate. His field of research was the investigation of propagation in terrestrial waveguides with the aid of microwave models. Since 1964, he has been an Assistant Professor at the University of Colorado.

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Kiyoyasu Itakura was born in Osaka, Japan, on November 27, 1914. He received the B.S. degree in electrical engineering from Kyoto University, Kyoto, Japan, in 1940 and the Ph.D. degree in electrical engineering from Osaka University, Osaka, Japan, in 1959.

From 1940 to 1941, he was an Assistant at Osaka University; from 1941 to 1942, a Lecturer; from 1942 to 1960, an Assistant Professor. Since 1960 he has been a Professor of Electrical Communication Engineering at Osaka University, engaged in research on microwave and millimeter-wave circuits.

Dr. Itakura is a member of the Institute of Electrical Communication Engineers of Japan and The Institute of Electrical Engineers of Japan.

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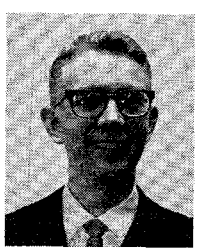

Kenneth Johnson (M'61) was born in Detroit, Mich., on October 13, 1935. He received the B.S. degree in physics from Wayne State University, Detroit, in 1957 and did graduate work at San Diego State College, San Diego, Calif., and at the University of California at Los Angeles from 1957 to 1960.

His early work was in the development of parametric amplifiers and harmonic multipliers. A major outcome of this work was the development of theory and techniques for wide bandwidth parametric amplifiers. Following this, his research studies on microwave modulation and demodulation of laser light led to the discovery and development of the microwave avalanche photodiode. As a result of this work, he was the recipient of the 1966 Browder J. Thompson IEEE Memorial Prize for his paper on the microwave avalanche photodiode. Recently, his research and development work on microwave transistor circuits has produced a series of varactor tuned transistor oscillators with octave tuning bandwidths from 125 MHz to 2 GHz. He is now with Texas Instruments, Incorporated, Dallas, where he is engaged in research and development studies on microwave integrated circuits including studies on the bulk effects and avalanche diode effects for use with efficient integrated microwave circuits.

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Ralph Levy (SM'64) was born in London, England, on April 12, 1932. He received the M.A. degree in physics from Cambridge University, Cambridge, England, in 1953 and the Ph.D. degree in electrical engineering from the University of London, London, England, in 1966.

From 1953 to 1959 he was a member of the Scientific Staff at the Applied Electronics Laboratories of the General Electric Company, Stanmore, Middlesex, England, where he worked on guided missile, radar, and countermeasures systems and on microwave components. In 1959 he joined Mullard Research Laboratories, Redhill, Surrey, England, where he directed a small section engaged in broadband receiver design, microwave components, and network synthesis. Since September, 1964, he has held the position of lecturer in the Department of Electrical and Electronic Engineering at The University of Leeds, Leeds, England, with research interests in microwave network synthesis and broadband microwave components.

Dr. Levy is joint editor of the international publication *Electronics Letters*. He is an associate member of the Institution of Electrical Engineers, and a member of their professional group committee on microwave theory and techniques.

Gerald F. Ross (S'51-A'53 - M'57 - SM'60) was born in New York, N. Y., on December 14, 1930. He received the B.E.E. degree from the College of the City of New York, N. Y., in 1952, and the M.E.E. and Ph.D. degrees in electrical engineering from the Polytechnic Institute of Brooklyn, Brooklyn, N. Y., in 1955 and 1963, respectively.

In 1952 he was employed as a research assistant at the University of Michigan Laboratories, Ann Arbor, where he developed microwave receivers. In 1953 he served as an Electronics Officer in the U. S. Air Force at the Holloman Air Development Center, Alamogordo, N. Mex. He joined the W. L. Maxson Corporation, New York, N. Y., in 1954 where he designed and developed electronic countermeasure equipment. In 1958 he joined the Sperry Gyroscope Company, Great Neck, N. Y., where he was engaged in the analysis and synthesis of phased array radar systems. In July, 1965, he transferred to the Sperry Rand Research Center, Sudbury, Mass., where, as a member of the research staff, he is currently involved in the study of wideband radar systems.

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

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Robert Seckelmann (M'62), for a photograph and biography please see page 51 of the January, 1966, issue of these TRANSACTIONS.

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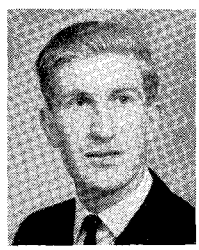

Ian Whiteley (S'65) was born in Huddersfield, Yorkshire, England, on May 23, 1943. He received the B.Sc. degree in electrical engineering from The University of Leeds, Yorkshire, England, in 1964. In the same year he began research for a doctoral dissertation on the subject of new types of microwave filters.

Mr. Whiteley is a graduate member of the Institution of Electrical Engineers.

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Sadahiko Yamamoto (S'63) was born in Osaka, Japan, on February 18, 1940. He received the B.S. degree in 1962, and the M.S. degree in 1964, both in electrical communication engineering, from Osaka University, Osaka, Japan. At present he is working for the Ph.D. degree at the graduate school of Osaka University, conducting research on the transmission theory of the multi-conductor line.

Mr. Yamamoto is a member of the Institute of Electrical Communication Engineers of Japan.

Microwave Abstracts

Based on technical merit and timeliness, microwave papers in journals published outside the United States have been selected and compiled below, many with annotations. Reprints of the papers may be obtainable by writing directly to the author or to the source quoted. The papers are in English unless noted otherwise.

—K. Tomiyasu, *Associate Editor for Abstracts*
General Electric Co., Schenectady, N. Y.

PAPERS FROM JOURNALS PUBLISHED IN THE UNITED KINGDOM

Compiled by Dr. E. A. Ash, University College, London, England

64
Design of a 4 Gc/s Nitrogen-Cooled Non-Degenerate Parametric Amplifier, by D. Chakraborty, G. F. D. Millward, and D. Geden (Post Office Research Station, Dollis Hill, London, N. W. 2, England); *Radio and Electronic Engineer*, vol. 31, pp. 27–32, January 1966.

The amplifier is pumped at 23 GHz, and the idler cavity is formed in an enlarged section of the pump waveguide. The signal circuit is formed in coaxial line, fitted with a low-pass filter. The identical units used in cascade give an overall gain of 30 dB, with a 3-dB bandwidth of 60 MHz. The noise temperature of the complete amplifier was 45°K, of which approximately 30°K is attributable to the inherent noise performance of the first stage. The amplifier is designed for satellite communication application.

65
Varactor Diode Measurements, by F. J. Hyde, S. Deval, and C. Toker (University College of North Wales, Bangor, Wales); *Radio and Electronic Engineer*, vol. 31, pp. 67–75, February 1966.

A critical discussion is presented of the relative merits of diode assessment, using impedance measurements at various frequencies, and resonant transmission measurements. Results obtained on particular diodes are compared. The satisfactory measure of correlation observed gives confidence in the use of the simple equivalent circuit.

66
The Performance of Backward Diodes as Mixers and Detectors at Microwave Frequencies, by T. Oxley and F. Hilsden (Associated Semiconductor Manufacturers Ltd., Wembley Laboratories, Wembley, Middlesex, England); *Radio and Electronic Engineer*, vol. 31, pp. 181–191, March 1966.

The design and construction of a type of germanium gold bonded diode is discussed and the performance described in some detail. At X-band, zero bias tangential sensitivities of -62 dBm (1 MHz video bandwidth) have been achieved. The low level of flicker noise suggests the attainment of a 16 dB noise figure at an IF of 3 kHz.