

Contributors



Rajendra K. Arora (S'64-M'65) was born in New Delhi, India, on December 30, 1936. He received the B.Sc. (Honors) degree in physics from the University of Delhi, Delhi, India, in 1956, the Diploma of the Indian Institute of Science, Bangalore, in electrical communication engineering in 1959, and the Ph.D. degree in electrical engineering from the University of St. Andrews, St. Andrews, United Kingdom, in 1965.

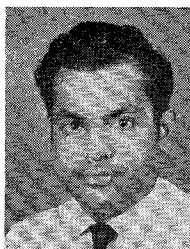
He joined the staff of the University of Roorkee, Roorkee, India, in 1959, studied in the United Kingdom on a Commonwealth Scholarship for the Ph.D. degree in 1962, and returned to the University of Roorkee in 1965, where he currently holds the position of Professor of Electronics and Communication Engineering. He is engaged in research in electromagnetic theory and its engineering applications in microwaves and antennas. He has been the head of the Research Group on Fields and Microwaves and is the Principal Investigator of a major PL-480 research project entitled "Electromagnetic Guiding and Radiating Structures," sponsored by the U. S. Department of Commerce, National Oceanic and Atmospheric Administration, under which a Radiation Laboratory has been set up at the University of Roorkee. He has won several research prizes and medals including the (highest) Khosla Research Award.

Dr. Arora is a member of the Institution of Electrical Engineers.

Research Laboratories, Redhill, Surrey, where he was engaged in broad-band receiver design, electronic countermeasures, microwave components, and network synthesis. In 1964 he was a faculty member in the Department of Electrical and Electronic Engineering, University of Leeds, where he carried out research in the fields of microwave network synthesis and broad-band microwave components, and held positions as an industrial consultant. Since 1967 he has been with Microwave Development Laboratories, Natick, Mass., where he has the position of Vice President for Research.

Dr. Levy is a member of the Institution of Electrical Engineers.

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R. Madhavan was born in Madras, India, in 1946. He received the B. Tech. degree in electrical engineering from the Indian Institute of Technology, Madras, in 1967 and the M.E. (Honors) degree in electronics and communication engineering from the University of Roorkee, Roorkee, India, in 1969.

Since 1969 he has been working as a Systems Engineer at the Space Science and Technology Centre, Indian Space Research Organisation, Trivandrum, India, where he is engaged in research and development work on the systems engineering aspects of space research projects.

Mr. Madhavan is a member of the Operations Research Society of India.

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R. J. Gutmann (S'58-M'63) received the B.E.E. degree from Rensselaer Polytechnic Institute, Troy, N. Y., in 1962, the M.E.E. degree from New York University, New York, N. Y., in 1964, and the Ph.D. degree from Rensselaer Polytechnic Institute in 1970.

While an undergraduate he was employed by the Microwave and Power Tube Division of Raytheon Company as part of his work-study program. From 1962 to 1966 he was a Member of the Technical Staff at Bell Telephone Laboratories, Whippny, N. J., where he worked on the development of microwave components and microwave systems for radar applications. From 1966 to 1967 he was a Senior Engineer at Lockheed Electronics Company, Plainfield, N. J., where he worked on beam steering and beam forming techniques for phased arrays. From 1967 to 1970 he was employed as a Research Assistant at Rensselaer Polytechnic Institute and as an Engineer at Rensselaer Research Corporation, working on bulk semiconductor microwave control devices. He is presently an Assistant Professor in the Electrophysics Division at Rensselaer Polytechnic Institute.

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

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Kenneth E. Mortenson (S'46-A'50-M'55-SM'57) was educated at Wesleyan University, Middletown, Conn., and Rensselaer Polytechnic Institute, Troy, N. Y., receiving the B.S., B.E.E., and M.E.E. degrees in 1947, 1948, and 1950, respectively, and the Ph.D. degree in applied physics in 1954.

He taught at Rensselaer Polytechnic Institute, in both the Departments of Physics and Electrical Engineering from 1947 to 1956, becoming an Assistant Professor in 1953. From 1949 to 1956 he participated in and later directed sponsored research in the areas of radiation and leakage, electromagnetic coupling devices, broad-band interference, and transistor circuitry. In 1956 he joined the General Electric Research Laboratory, Schenectady, N. Y., as a Research Associate engaged in studies of the physical operation, electrical characterization, and fabrication of transistors and special high-frequency diodes. In 1960 he became Director of Research and Development, Microwave Semiconductor Components and Devices, Microwave Associates, Inc., Burlington, Mass., where he was engaged in directing effort in the development of semiconductor, microwave control and generating components, and related semiconductor devices such as varactors, p-i-n, and tunnel diodes. From 1963 to 1967 he was Professor of Electrical Engineering and Chairman of the Department of Electrical Engineering at Rensselaer Polytechnic Institute where he continued research on bulk and junction semiconductor devices for microwave applications. From 1967 to 1969 he served as Associate Dean of the School of Engineering responsible for all engineering advanced studies and research activities. He was made President of the Rensselaer Research Corporation, Troy, N. Y., in 1969.

Dr. Mortenson is a member of Eta Kappa Nu, Sigma Xi, the American Society for Engineering Education, the American Association for the Advancement of Science, and the New York State Academy of Sciences.



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

From 1953 to 1959 he was a member of the Scientific Staff at the Applied Electronics Laboratories, 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

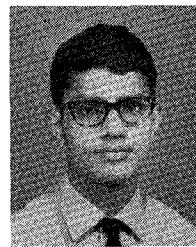


S. F. Paik (S'56-M'62) was born in Seoul, Korea, on November 12, 1935. He received the B.S. degree in electrical engineering from Northwestern University, Evanston, Ill., in 1958 and the M.S. and Ph.D. degrees from Stanford University, Stanford, Calif., in 1959 and 1961, respectively.

From 1959 to 1961 he was a Research Assistant at Stanford Electronics Laboratories. He was with Raytheon Research Division, Waltham, Mass., from 1961 to 1964, and during the academic years 1964-1966 he was on the faculty of the Department of Electrical Engineering at Northwestern University. After a brief association with NASA Electronics Research Center, Cambridge, Mass., in 1966, he joined Microwave Associates, Inc., Burlington, Mass., where he was engaged in R & D activities in high-power microwave tubes, gas-discharge devices, and solid-state microwave amplifiers. Since 1970 he has been with the Micro State Group of Raytheon Company, Waltham, Mass., where his main responsibility is in the development of avalanche diode amplifiers.

Dr. Paik is a member of Tau Beta Pi, Eta Kappa Nu, Pi Mu Epsilon, Phi Eta Sigma, and Sigma Xi.

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Srinivasan Vijayaraghavan was born in Madras, India, on November 18, 1944. He received the B.Tech. degree in electrical engineering from the Indian Institute of Technology, Madras, in 1966 and the M.E. degree in electronics and communication engineering from the University of Roorkee, Roorkee, India, in 1968. At present he is working toward the Ph.D. degree in electronics and communication engineering.

In 1968 he joined the University of Roorkee as a Lecturer in Electronics and Communication Engineering. Since then he has been engaged in research work on shielded surface waveguides and his publications have appeared in journals of repute in India and abroad.

Foreign Abstracts

PAPERS FROM JOURNALS PUBLISHED IN JAPAN

Compiled by Prof. T. Okoshi, Department of Electrical Engineering, University of Tokyo. Prof. Okoshi points out that where articles in *Trans. IECEJ*, in Japanese, are referenced, these may be available in English translation, with a few months' delay, in *Electronics and Communications in Japan*.

1 **Millimeter-Wave Guided Transmission System, I—System**, by K. Miyauchi and S. Matsuda (The Electrical Communication Laboratory, N.T.T., Musashino-shi); *J. IECEJ* (Invited Paper), vol. 53, pp. 1544-1547, Nov. 1970.

A review on recent advances.

2 **Millimeter-Wave Guided Transmission System, II—Equipment**, by S. Shimada (The Electrical Communication Laboratory, N.T.T., Musashino-shi) and R. Kuroda (Yokohama Works, Nippon Electric Co., Ltd., Yokohama-shi); *J. IECEJ* (Invited Paper), vol. 53, pp. 1548-1552, Nov. 1970.

A review on recent advances.

3 **Millimeter-Wave Guided Transmission System, III—Waveguides**, by N. Sushi (The Electrical Communication Laboratory, N.T.T., Musashino-shi), H. Kaiden (The Furukawa Electric Co., Ichihara-shi), N. Kurauchi (Sumitomo Electric Industries Ltd., Osaka-shi) and S. Tanaka (The Fujikura Cable Works Ltd., Tokyo); *J. IECEJ* (Invited Paper), pp. 1553-1556, Nov. 1970.

A review on recent advances.

4 **Optical Communication System**, by J. Hirano (The Electrical Communication Laboratory, N.T.T., Musashino-shi) and Y. Suematsu (Tokyo Institute of Technology, Tokyo); *J. IECEJ* (Invited Paper), pp. 1557-1563, Nov. 1970.

A review on recent advances. Speculation on the future optical communication system is also described.

5

A Design Method for the Multi-Layer Absorber for Microwaves—The Case of Wide-Band Type, by M. Ono and M. Suzuki (Faculty of Engineering, Yamagata University, Yonezawa-shi, Japan 992); *Trans. IECEJ*, vol. 53-B, pp. 671-678, Nov. 1970.

A new method of synthesis is proposed. It features the use of the concept of the quarter-wave transformer extended to lossy lines. The computed frequency response is presented.

6

Millimeter-Wave Frequency-Multiplier Circuit Using a Semiconductor Diode, by S. Shinohara (Faculty of Engineering, Shizuoka University, Hamamatsu-shi, Japan 430) and S. Okamura (University of Tokyo, Japan 113); *Trans. IECEJ*, vol. 53-B, pp. 693-700, Nov. 1970.

A new type of frequency-multiplier circuit having no movable tuning element is proposed. A 70-GHz doubler has been designed and constructed. The observed output power, input, and output impedances agreed well with the theoretical prediction.

7

K-Band Tunnel Diode Mixer, by S. Kamoshita (The Electrical Communication Laboratory, N.T.T., Musashino-shi, Japan 190); *Trans. IECEJ* (Corresp.), vol. 53-B, pp. 712-713, Nov. 1970.

A conversion gain of 4 dB has been obtained in the 25.7-26.3-GHz range.

8

Beam Waves along Complex Dielectric Constant Lenslike Medium, by Y. Suematsu, T. Shimizu (Tokyo Institute of Technology, Tokyo, Japan 152), and T. Kitano (Central Research Laboratory, Nippon Electric Co., Ltd., Kawasaki-shi, Japan 211); *Trans. IECEJ*, vol. 53-B, pp. 727-734, Dec. 1970.