

Foreword

SPECIAL ISSUE ON HIGH-POWER MICROWAVES

DURING the 1975 IEEE International Microwave Symposium in Palo Alto, CA, a strong interest was voiced suggesting a technical session featuring high-power microwaves. One year later at the 1976 IEEE International Symposium in Cherry Hill, NJ, a High-Power Microwave Techniques Session was scheduled and there was a large attendance. Some of the papers stressed application of high power to radar and power transmission. Other papers dealt with components and techniques.

Because of this response, the Administrative Committee of the Microwave Theory and Techniques Society approved the publication of a Special Issue of this TRANSACTIONS featuring high-power microwave components, techniques, and applications. The issue was scheduled for publication in May 1978. As a result of the Announcement of the Special Issue many papers were received and refereed. Most of these papers were accepted and appear in this issue.

An attempt has been made to group the papers according to related aspects of the technology. The papers by Bromaghim and Perry and Goudey and Sciambi pertain to the high-performance M.I.T. Lincoln Laboratory long-range imaging radar. The Wengenroth paper, like the Goudey and Sciambi paper, pertains to a microwave radiator for high power levels. The next paper by Dickinson discusses safe transmission of an exceedingly high power beam from a geostationary satellite power station to an urban receiving station on earth located over 22300 miles away.

The next three papers by Mohr, Carlisle, and Albanese and Kerbs describe special components which operate at high power levels. The paper by Nakamura *et al.* reports on high-power breakdown waveguide at 28 GHz. Three papers deal with ferrite devices that operate successfully at high power levels. Finally, extensive analytical and experimental work on a spark gap generator of microwave power is described briefly in a paper by Ristic and Sorensen.

The Guest Editor is very pleased to acknowledge the effort given to the microwave profession by the many individuals listed below who freely gave of their time by reviewing the papers submitted for this Special Issue. An expression of appreciation is given to:

M. S. Afifi	P. D. Coleman	F. J. Rosenbaum
V. J. Albanese	R. A. Dehn	G. F. Ross
C. C. Allen	H. Goldie	R. A. Sparks
D. A. Bathker	R. C. Hansen	D. C. Stinson
W. C. Brown	Y. Konishi	C. Sun
W. E. Brown, Jr.	L. Leopold	F. E. Welker
D. C. Buck	A. W. Love	L. R. Whicker
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Guest Editor



Kiyo Tomiyasu (S'41-A'42-M'49-SM'52-F'62) was born in Las Vegas, NV, on September 25, 1919. He received the B.S. degree in electrical engineering from the California Institute of Technology, Pasadena, in 1940 and the M.S. degree in communication engineering from Columbia University, New York, NY, in 1941. He studied at Stanford University, Stanford, CA, under a Low Scholarship, then entered Harvard University, Cambridge, MA, where he continued graduate work on a Gordon McKay Scholarship and received the Ph.D. degree in 1948.

He served as a Teaching Fellow, Research Assistant, and Instructor at Harvard University. In 1949 he joined the Sperry Gyroscope Company, Great Neck, NY, as a Project Engineer, and in 1952 was promoted to Engineering Section Head for Microwave Research in the Microwave Components Department. In 1955 he joined the General Electric Microwave Laboratory, Palo Alto, CA, and five years later transferred to the General Electric Research and Development Center, Schenectady, NY. In 1969 he became a Consulting Engineer at General Electric Valley Forge Space Center, Philadelphia, PA. He has had extensive experience in microwaves, radar, electronic countermeasures, microwave components, microwave radiometers, ferrites, microwave tubes, lasers, and laser applications. He has published numerous papers, and twenty patents have been issued in his name. In 1977 he was granted a General Electric Company Charles Proteus Steinmetz Award for outstanding individual achievement over a sustained period as evidenced by impact on the Company

and society. He was Editor of IRE TRANSACTIONS ON MICROWAVE THEORY AND TECHNIQUES in 1957 and 1958. He was an elected member of the MTT/S Administrative Committee for many years and served as its President from 1960 to 1961 and on various committees subsequently.

Dr. Tomiyasu was elected Honorary Life Member of MTT/S and of its Administrative Committee in June 1973. He was a member of the IEEE Quantum Electronics Council and served as its Chairman in 1970. He has served on the IEEE Technical Activities Board Operating Committee, IEEE Publication Board and is currently serving on the IEEE Awards Board. He also is a member of the American Physical Society and is listed in *Who's Who In The East*.