

# 1977 MTT Awards

G. P. RODRIGUE, FELLOW, IEEE

**A**T the annual Symposium Banquet, MTT President Harold Sobol presented the following MTT Society awards for the year 1977:

Microwave Career Award—Ernst Weber

Microwave Prize—  
                             { Marion E. Hines  
                             { Ronald S. Posner  
                             { Allen A. Sweet

Microwave Application Award—Stephen I. Long.

IEEE President Ivan A. Getting presented Fellow Certificates to Joseph F. White and John W. Bandler. MTT-S AdCom recognized the extensive contributions of Helmut Altshuler, Tore Anderson, Robert A. Rivers, and E. N. Torgow with Distinguished Service Awards. In addition, the 1977 National Lecturer Plaque was presented to John M. Osepchuk.

## MTT SOCIETY AWARDS

### *Microwave Career Award*

The Microwave Career Award is presented aperiodically to an individual for a career of meritorious achievement and outstanding technical contributions in the field of microwave theory and techniques. Ernst Weber was selected in 1977 to receive the Microwave Career Award in recognition of his more than 50 years of continuous contributions in the fields of microwave engineering, education, and in engineering professional activities.

In the early years of World War II, Dr. Weber organized a pioneering microwave research group at Brooklyn Polytechnic Institute of New York, Brooklyn, NY. He retired as President of that institution in 1969 and now makes his home in North Carolina. As recipient of the Microwave Career Award, Dr. Weber received a certificate, a plaque, and a check for \$500. A brief biography of Dr. Weber is given below.



**Ernst Weber** (M'31-F'34-LF'66) was born in Vienna, Austria, on September 6, 1901. A dual interest in philosophy and engineering led him to pursue a double course of studies in his native city, attending both the Technical University of Vienna and the University of Vienna. Following receipt of the diploma in electrical engineering in 1924, he was awarded the degree of Doctor of Science from the Technical University of Vienna in 1927, and a Ph.D. from the University of Vienna in 1926. He holds honorary doctorates

from Newark College of Engineering, Pratt Institute, Brooklyn Law School, Long Island University, the University of Michigan, and Polytechnic Institute of Brooklyn.

He first joined the Austrian Siemens-Schuckert Company as Research Engineer. He then was transferred to the Siemens-Schuckert Company in Berlin in 1929, and was appointed Lecturer at the Technical



University of Berlin. In the fall of 1930, he was invited to be Visiting Professor at the Polytechnic Institute of Brooklyn. A year later he was named a permanent Research Professor of Electrical Engineering in charge of graduate study. Early in World War II, Dr. Weber organized a microwave research group, out of which grew the Microwave Research Institute, forerunner of the present Department of Electrophysics. In 1945, he was appointed Head of the Department of Electrical Engineering and Director of the Microwave Research Institute. When the Vice-Presidency for research at the Polytechnic was created in 1957, he was named to that position. He was appointed President on December 20, 1957. In 1944, he and his associates founded the firm named Polytechnic Research and Development Company, Inc., known as P.R.D. It was sold in 1959 to the Harris-Intertype Corporation and continues as PRD Electronics; the proceeds from the sale went to the endowment fund of the Polytechnic Institute of Brooklyn. A pioneer in high-frequency electronic research, he holds many American, Canadian, and British patents in the field of microwave techniques. His published works include many scientific papers on electromagnetic fields, linear and nonlinear circuits, and microwave measurements. He has contributed to several books and has published "Mapping of Fields" and "Linear Transient Analysis." He retired as President of Polytechnic on June 30, 1969, when he was elected Professor Emeritus and President Emeritus.

Dr. Weber is a Fellow, served as a member of the board, as member of the executive committee and was President in 1959 of the Institute of Radio Engineers. He served as the first President of IEEE in 1963. He is a Fellow of the American Physical Society, an honorary member of the Institute of Electrical Engineers of Japan, and of the Institute of Radio Engineers of Japan. He is also a member of the National Academy of Sciences and founding member of the National Academy of Engineering. He served as Chairman of the Engineering Division of the National Research Council, National Academy of Sciences in Washington, DC, from 1969 to 1974, and is now a member of the Commission on Sociotechnical Systems of the National Research Council, having served as its acting Executive Director from November 1, 1974 to June 1, 1976.

### *Microwave Prize*

The Microwave Prize is awarded annually for the paper making the most significant contribution in the field of interest of the Society among those published in an official IEEE publication during the year ending June 30th.



## Microwave Theory and Techniques Society 1977 Microwave Prize

to

Marion E. Hines  
Ronald S. Posner  
Allen A. Sweet

for a very significant contribution to the field of endeavor of the IEEE MTT Society in their paper entitled "Power Amplification of Microwave FM Communication Signals Using a Phase-Locked Voltage-Tuned Oscillator," published in the IEEE Transactions on Microwave Theory and Techniques, Volume MTT-24, Number 7, July 1976.



June 28, 1978

*Harold Soler*  
President, MTT

*John Rodrigue*  
Chairman,  
MTT Awards Committee

MICROWAVE THEORY  
AND TECHNIQUES



The Microwave Prize was awarded for the paper "Power Amplification of Microwave FM Communication Signals Using a Phase Locked Voltage Tuned Oscillator," published in the IEEE TRANSACTIONS ON MICROWAVE THEORY AND TECHNIQUES, vol. MTT-24, pp. 393-404, July 1976.

The authors, Marion E. Hines, Ronald S. Posner, and Allen A. Sweet, each received a certificate and a check for \$100. This marked the first time that an individual has twice won the Microwave Prize. Mr. Hines also received the 1971 Microwave Prize. Their biographies follow.

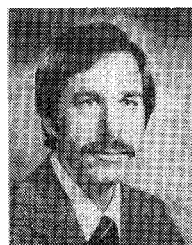


**Marion E. Hines** (S'46-A'47-M'50-SM'60-F'68) was born on November 30, 1918, in Bellingham, WA. He received the B.S. degree in applied physics in 1940 and 1946, respectively, from the California Institute of Technology, Pasadena, CA. He returned to the California Institute of Technology and received the M.S. in electrical engineering. Further part-time graduate study in physics was done in 1947-1948 at Columbia University, New York, NY.

He joined the U.S. Army Air Force in 1940, and served as a Weather Officer throughout the war. From 1946 to 1960, he was a member of the Technical Staff at Bell Telephone Laboratories. Until 1956, he worked with traveling-wave tubes, microwave triodes, and digital storage tubes, making contributions to beam focusing, amplification theory, and practical tube development. In 1956, his interest shifted to semiconductor devices. In 1957, (with H. E. Elder) he demonstrated the first negative-resistance varactor parametric amplifier. In 1960, he published an important paper on the microwave properties of tunnel diodes. In 1960, he joined Microwave Associates, Inc. In the period to 1963, he and his co-workers established many of the fundamental principals of varactor harmonic generation and developed numerous practical microwave power sources using this principle. This led to the introduction of all-solid-state microwave communications systems by Microwave Associates in the mid 1960's. In 1964, he published a fundamental paper on microwave power control using p-i-n and other diodes. This led to the development of practical pulsed megawatt duplexers, multikilowatt phase shifters, and power switches, now extensively used for RADAR. From 1965 to 1974, he concentrated on IMPATT and Gunn-effect diodes, making important contributions to a quantitative understanding of their electron dynamics and to their application as microwave oscillators and amplifiers. These include the small-signal impedance theory (1966); small signal noise theory (1966); nonlinear effects in oscillators and power amplifiers (1970); and large signal noise, instabilities, and intermodulation (1972). Since the mid 1970's, serving as Vice-President and Corporate Technical Director, he has diversified somewhat, having published papers on ferrite devices, on new methods

of microwave power amplification, and on computer science and automatic microwave measurements. At present, he is studying improved techniques for microwave diode frequency conversion. He has contributed more than 50 technical papers and oral presentations and holds about 40 patents.

Mr. Hines received a "Best Paper" award from ISSCC in 1967. In 1976, he received the J. J. Ebers Award from the IEEE Electron Devices Group.



**Ronald S. Posner** (M'64-M'72) was born in Los Angeles, CA, on February 22, 1943. He received the B.S. degree in engineering from the University of California, Los Angeles, in 1964. He received the M.S. degree in engineering in January 1966, from the University of California, Los Angeles, specializing in electromagnetics. Awarded a NASA Fellowship, at the University of California, Los Angeles, he continued his studies and research in the area of solid-state electronics, quantum mechanics, and applied

mathematics. He received his Ph.D. in engineering in June, 1970. His dissertation concerned current crowding in bipolar transistors.

He joined Rantec Corporation. His responsibilities included the development of microwave components for broad-band automatic impedance measurements systems and the development of circulators and ferrite phase shifters. In September 1972, he became a member of Microwave Associates, Inc., where he has spearheaded the development of commercial microwave sources, sensors, and telecommunications local oscillators. Currently, he is Product Manager for Commercial Microwave Products, where he has been active in the creation of a commercial microwave communications technology.

Dr. Posner graduated with honors, received the faculty-friends prize for his senior engineering design project (a restartable solid propellant rocket engine with the capability of controlled thrust termination and restart), and was awarded the faculty-alumni award for outstanding academic achievement by a Ph.D. candidate in engineering. He is a member of Tau Beta Pi.



**Allen A. Sweet** (S'66-M'66) was born in Providence, RI, on July 5, 1943. He received the B.S.E.E. from Worcester Polytechnic Institute of New York, Brooklyn, NY, in 1966. Cornell University, Ithica, NY, awarded him the M.S. degree in 1968, and the Ph.D. degree in 1970.

From 1969 to 1971, he was a Senior Research Engineer with the Monsanto Company. At Monsanto his work concerned the electrical characterization of Gunn devices, with special emphasis on noise. From 1971 to 1975, he was employed by Microwave Associates as a group leader in charge of communications sources. During this period he developed many kinds of Gunn sources including the first commercially available cavity stabilized Gunn source for telecommunications. In 1975, he joined Varian Associates in Palo Alto, CA, where he developed a line of GaAs FET amplifiers and the processing laboratory necessary for their construction. In 1977, he joined Watkins-Johnson as Section Head in charge of communications amplifiers. His present work concerns the development of a line of cooled GaAs amplifiers for communications systems. He has published over twenty technical papers, many of them in the area of oscillator noise.

### Microwave Application Award

The Microwave Application Award is presented aperiodically to an individual for an outstanding application of microwave theory and techniques. Stephen I. Long of Varian Associates was named in 1977 to receive this award in recognition of his work in InP materials and their application to Gunn diode devices. Dr. Long specifically requested that key contributions by several col-

leagues be acknowledged. They are R. D. Fairman for InP epitaxial material growth; R. J. Hamilton, Jr., for circuit design and device evaluation; J. T. Andrews for device evaluation; and F. B. Fank for his leadership, encouragement, and support. Dr. Long received a certificate and a check for \$100. The certificate showing the full citation is reproduced below along with a brief biography of Dr. Long.



Microwave Theory and Techniques Society  
1977 Microwave Application Award

to

Stephen I. Long

For the Study of InP Material and Circuits for  
Application to Millimeter Wave Gunn Diode Devices.



June 28, 1978

*Harold S. Salts*  
President, MTT

*John M. Osepchuk*  
Chairman,  
MTT Awards Committee

MICROWAVE THEORY  
AND TECHNIQUES



**Stephen I. Long** (S'68-S'73-M'73) was born in Alameda, CA, on January 11, 1946. He received the B.S. degree in engineering from the University of California, Berkeley, in 1967, and the M.S. and Ph.D. degrees in electrical engineering from Cornell University, Ithaca, NY, in 1969 and 1974, respectively. His thesis research dealt with steady-state liquid phase epitaxial growth of GaAs.

During 1966 and 1967, he was a Staff Assistant at Stanford Linear Accelerator Center and

investigated electron multiplication effects in alkali halides. During 1968 and 1969, he helped to develop GaAs liquid phase epitaxial growth systems at Cayuga Associates, Ithaca, NY, for transferred electron device fabrication. From 1969 to 1973, he served as a Project Engineer at the Rome Air Development Center, Griffiss AFB, NY, where he investigated and developed a steady-state LPE growth technique for thick, uniformly doped layers. In 1974, he joined Varian Associates, Palo Alto, CA, where he has worked on vapor phase epitaxial growth of GaAs and InP, development of GaAs and InP, development of GaAs high efficiency IMPATT devices, and millimeter-wave InP oscillator and amplifier devices. He is presently manager of the semiconductor engineering group, solid-state west division.

Dr. Long is a member of Tau Beta Pi and the Northern California Crystal Growers.

*National Lecturer*

John M. Osepchuk, the 1977 MTT-S National Lecturer, received a plaque for his service during the year. Dr. Osepchuk gave his talk "Microwave Radiation Hazards in Perspective" to more than 20 chapters. A photograph of the National Lecturer's Plaque is reproduced below.

