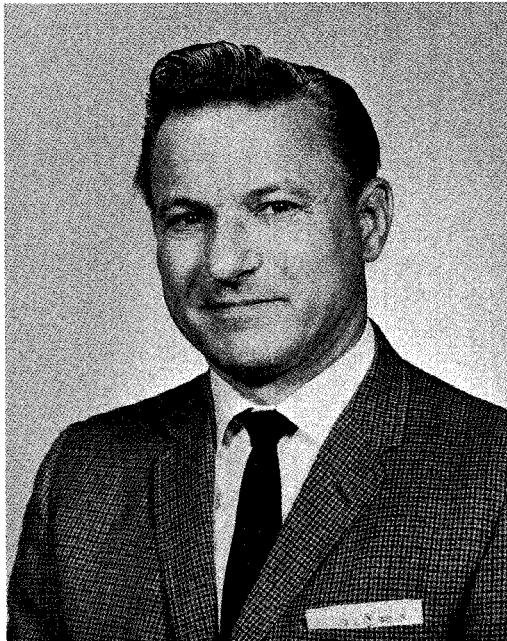


1977 MTT-S MICROWAVE PRIZE AWARD

To Robert A. Pucell, Daniel Massé, and Richard Bera, for their June 1976 MTT paper:
"Performance of GaAs MESFET Mixers at X Band"



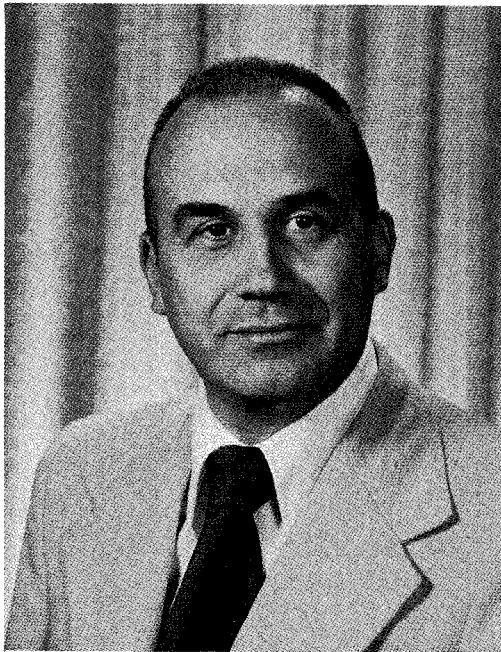
Robert A. Pucel (S'48-A'52-M'56-SM'64) received the B.S. and M.S. degrees in 1951, and the D.Sc. degree in 1955, in electrical communications, from the Massachusetts Institute of Technology, Cambridge, Mass.

From 1948 to 1951 he was a Test Engineer on the M.I.T. Cooperative Course with the General Electric Company. Following his graduation, he joined the Microwave Tube Group at the Research Division of the Raytheon Company, Waltham, Mass. A year later, he returned to M.I.T., where, from 1952 to 1955 he was a Staff Member of the M.I.T. Research Laboratory of Electronics, doing theoretical studies in network theory, the basis for his doctoral thesis. He studied under the late Professor Guillemin.

He rejoined the Research Division of Raytheon in 1955. In 1965 he organized the first microwave semiconductor and integrated circuits program at Raytheon and was its manager until 1970. Following this, he served as consultant to this program and semiconductor programs in other divisions of Raytheon. In 1974 Dr. Pucel was appointed a Consulting Scientist at the Research Division, the highest professional level at Raytheon.

His work has involved theoretical and experimental studies of new semiconductor device concepts and the design of high-frequency semiconductor devices; for example, the tunnel diode, varactor, avalanche diode, Gunn and LSA structures, metal-semiconductor-metal (MSM) diodes, experimental studies of microstrip propagation on dielectric and magnetic substrates, thin-film components for microwave integrated circuits, and miniature dielectric cavities. His recent studies are concerned with noise and signal properties of microwave field-effect transistors and Read diodes. Dr. Pucel has published extensively on these topics and has patents in this area of research.

Dr. Pucel is a member of the Professional Group on Electron Devices and the Professional Group on Microwave Theory and Techniques. He is also a Registered Professional Engineer of the Commonwealth of Massachusetts.



Daniel Massé received his diploma in electrical engineering from Ecole Centrale de TSF, Paris, France, in 1951.

From 1951 to 1953 he was engaged in research and development of remote control equipment at the SECRE, Paris. In 1953 he joined the Compagnie Generale de TSF, Paris, to work on fire-control analog computers.

From 1957 to 1967, Mr. Massé was with the Special Microwave Device Operation of Raytheon Company where he was engaged in the research and development of ferrite components, specializing in TEM devices.

In the period from April 1961 to May 1962 he was on leave at the Research Division of Raytheon working on an Air Force contract study of nonlinear microwave ferroelectric devices.

Since 1967, he has been a staff member of the Solid State Physics and Microwave Group of the Research Division.

His current interests and activities are the measurement of ferrite, dielectric, and semiconductor material properties, the design and development of microwave integrated circuits and ferrite devices, the characterization and modeling of low-noise and high-power FETs and their associated circuits.



Richard Bera attended the Massachusetts Institute of Technology from 1961 to 1966. From 1966 to 1968 he was a member of the Department of Environmental Health Engineering of the U.S. Army Medical Corps.

In 1968 he joined the Research Division of Raytheon where he was engaged in semiconductor characterization and measurement of TRAPATT diode oscillators.

Since 1972 he has been a staff member of the Research Division and has participated in the development of GaAs FET oscillators and mixers.

He is currently involved in the design and evaluation of IMPATT diode microstrip circuits.

1977 MTTS MICROWAVE CAREER AWARD

to

John R. Whinnery



John Whinnery was born in western Colorado but moved to California when he was ten. He majored in Engineering at the Modesto Junior College and received his B.S. degree in Electrical Engineering from the University of California, Berkeley. His first job was at the General Electric Company, Schenectady, on the Test Program, and later the Advanced Engineering Program. His first assignment was with W. C. Hahn, who at that time (1939) had velocity modulation tubes producing 100 watts CW at 10 cm. wavelengths. There were lower power tubes operating at 5 cm. wavelengths, some electrically tuneable.

A following assignment was with Simon Ramo, working with microwave magnetrons, and during that assignment Ramo invited him to join in a book he was starting - one that became the well-known "Fields and Waves in Modern Radio" after many drafts and some trial uses at G.E.

During World War II Whinnery worked on microwave disc-seal triodes of the lighthouse class with Ramo, E. D. McArthur, Jim Beggs and others. Using techniques learned from Hahn, he co-authored a series of papers on transmission line and waveguide discontinuities useful in design of discontinuous structures. During

this period he taught in Defense Training classes, and was also a part-time lecturer at Union College.

Following the war, Whinnery returned to Berkeley to complete a doctorate on microwave antenna problems, teaching first as a Lecturer and then as Associate Professor. He developed the undergraduate course in Electromagnetic Fields and Waves, and graduate courses in Microwave Networks and Microwave Electron Tubes. His consulting work at that time was with the Hughes Aircraft Company on phased-array antennas.

In 1952-1953, on a leave from the University, he served as Head of Microwave Tube Research in the Electron Tube Laboratory at Hughes with emphasis on traveling-wave tubes for the Hughes systems applications. His research after returning to the University stressed microwave tubes, where associates and graduate students studied backward-wave amplifiers, beam noise, and re-entrant crossed-field devices. He was also director of the Electronics Research Laboratory and the Chairman of the Electrical Engineering Department during this period. In 1959 he became Dean of the College of Engineering at Berkeley and served in that position until 1963.

Following his assignment as Dean, he again took an industrial leave, this time at the Bell Laboratories, Murray Hill, and had an opportunity to start work on lasers and optical communication problems. His research at Berkeley following that leave reflected these new interests with stress on thermal-lens effects arising from laser beams in lossy materials, transverse mode locking in laser cavities, acousto-optic interactions, and more recently, optical guiding by liquid crystals and curved dielectric surfaces.

Whinnery has been on numerous government advisory committees, principal of which were the Advisory Group on Electron Devices for DoD, the Science and Technology Advisory Committee, advisory to NASA for the Apollo program, the Standing Committee on Controlled Thermonuclear Research of the former AEC, and several advisory committees for the National Science Foundation. He recently completed service on the Telecommunications Committee of NAE-NRC and is a member of the Committee on Science and Public Policy (COSPUP) of NAS.

In addition to the leaves in industry, visiting years were spent at Stanford University and the University of California, Santa Cruz. He has been a member of the Board of Directors of Granger Associates, a manufacturer of microwave radios and antennas, since the beginning of the company. He served in all offices of the San Francisco IRE and was later on its Board of Directors; still later he was on the Board of IEEE, becoming Secretary in 1970.

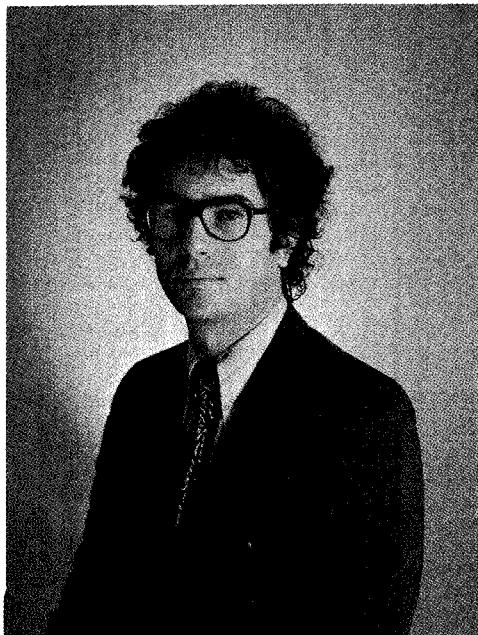
Prizes and Awards include the IEEE Education Medal (1967), the Lamme Medal of the American Society of on Engineering Education (1975), a Guggenheim Fellowship (1959), and a Research Professorship in the Miller Institute for Basic Research in Science (1973). He is a member of the National Academy of Engineering and the National Academy of Sciences.

Hobbies include non-technical writing, with many unpublished poems and children's stories circulated among friends. His interest in hiking and backpacking started in the Adirondacks and White Mountains during the period at GE but is now carried on in the High Sierra or along the California Coast. He shares with other members of his Department an interest in California wines and tries to keep up with the latest vintages of the Napa, Sonoma and Alexander valleys in that rapidly changing scene. Whinnery is a poor gardener and a worse golfer, but finds both activities fun when there is time for them.

1977 MICROWAVE APPLICATIONS AWARD

to

Martin G. Walker



M. G. Walker, member of the Technical Staff, Solid State Division, Watkins-Johnson Company. Born 1952, Berkeley, California.
S.B.E.E., Massachusetts Institute of Technology, 1973.
S.M.E.E., Stanford University, 1976.

Martin Walker is currently a member of the Solid State R&D Department of the Watkins-Johnson Company, his principal responsibility being the development of GaAs FET amplifier circuits for operation at 10 GHz and above. His current technical activities include the design and development of 12-18 GHz broadband amplifiers as TWT replacements and 10 GHz narrowband low noise FET amplifiers for radar applications. He previously developed 12-15 GHz and 12-18 GHz amplifier prototypes for the U.S. Army (ECOM), and a 9.6 GHz radar front end for the U.S. Air Force (AFAL). The 12-15 and 12-18 GHz FET amplifiers were the first reported for those frequency bands. The radar front end included full integration of an RF preamp, RF gain control, mixer, FET voltage controlled oscillator, and IF amplifier - all in a highly miniaturized configuration.

Mr. Walker was previously responsible for the successful development of 4-8 and 8-12.4 GHz FET amplifiers at the Watkins-Johnson Company. A key contribution to the success of this amplifier effort was Mr. Walker's synthesis of a very complete RF circuit design computer program which included a sophisticated circuit optimization capability. Mr. Walker's computer program has constituted an essential contribution to the success of several GaAs FET RF amplifier program at Watkins-Johnson; he has acted as a computer analysis consultant on numerous projects.

While at MIT, Mr. Walker developed fabrication techniques for a BARRITT diodes. He fabricated and characterized the various devices to optimize performance.

Mr. Walker is a member of Tau Beta Pi, Eta Kappa Nu and the IEEE.

PUBLICATIONS:

"Microwave Amplifiers", Wescon Technical Paper, Sept. 1974.

"Cover X-Band with an FET Amplifier", Microwaves, Oct. 1975, with F. T. Mauch and T. A. Williams.

"MESFET Amplifiers Go to 18 GHz", Microwave Systems News, April/May 1976, with F. A. Marki and H. M. Abramowitz.

"A 12-18 GHz High Gain Amplifier Design using Submicron Gate GaAs Field Effect Transistors", 1976 IEEE-MTT-S International Microwave Symposium Digest, June 1976 pp. 101-103.