

1990 MTT-S Awards

F. J. ROSENBAUM, FELLOW, IEEE

AWARDS serve several important functions for the society. First, they provide a means of recognizing individuals for their valued technical and service contributions. Next, they add stature to the MTT-S by demonstrating the quality of our members and associates. They also serve to inform the public that the many technical advances they enjoy are the fruits of the labors of real people. And, finally, they make a statement to all workers in our allied fields as to the standards that should and can be met, and that their contributions are noted and weighed by their peers.

This year the MTT-S awards were presented at the Awards Banquet by Society President Tatsuo Itoh to the following awardees. Included for the first time was the Pioneer Award, made to an individual whose technical contribution has endured and had an impact on the field for more than 20 years.

Microwave Career Award
Microwave Prize

Robert A. Pucel
Mitsutaka Hikita
Yoshikatsu Ishida
Toyoji Tabuchi
Kazuhito Kurosawa

Microwave Application Award
Pioneer Award
Distinguished Service Award
N. Walter Cox Award

Allen F. Podell
Hatsuaki Fukui
H. George Oltman, Jr.
Peter W. Staecker

Several society members received Service Awards. The Past President's Pin and a plaque were presented to Walt Gelnovatch, and Chuck Swift was honored with the Meritorious Service Award as well as a Certificate of Recognition for his efforts as 1989 Symposium Steering Committee Chairman. Certificates were also awarded to Reynold S. Kagiwada, 1989 Symposium Technical Committee Chairman, and Ken Yano, Vice Chairman. Reynold was also General Chairman of the GaAs Microwave and Millimeter-Wave Monolithic Circuits Symposium and was so recognized. Two retiring MTT-S Administrative Committee members were noted for their contributions to the society: Edward C. Niehenke and Louis Medgyesi-Mitschang. Rodney S. Tucker was commended for his service as Editor of the TRANSACTIONS ON MICROWAVE THEORY AND TECHNIQUES.

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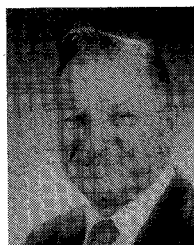
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MTT SOCIETY AWARDS

Microwave Career Award

The Microwave Career Award honors an individual for a career of meritorious achievement and outstanding technical contributions in the field of microwave theory and techniques. The 1990 award was made to Dr. Robert A. Pucel of the Raytheon Research Division, Lexington, MA.

Dr. Pucel has been a leading proponent and technical leader in the development of microwave monolithic integrated circuits. Since 1951 he, along with colleagues at Raytheon, has made significant contributions to the understanding of microwave semiconductor devices, dispersion and losses in microstrip, and high-dielectric-constant material for dielectric resonators. He has been a major force in the modeling and application of FET's at microwave frequencies and in integrating microwave functions in monolithic form. His sustained and effective efforts have helped make MMIC technology practical. Dr. Pucel's Career Award citation reads "For a Career of Meritorious Achievement and Outstanding Technical Contributions to the Field of Microwave Theory and Techniques." The award consists of a plaque, a certificate, and \$2000.



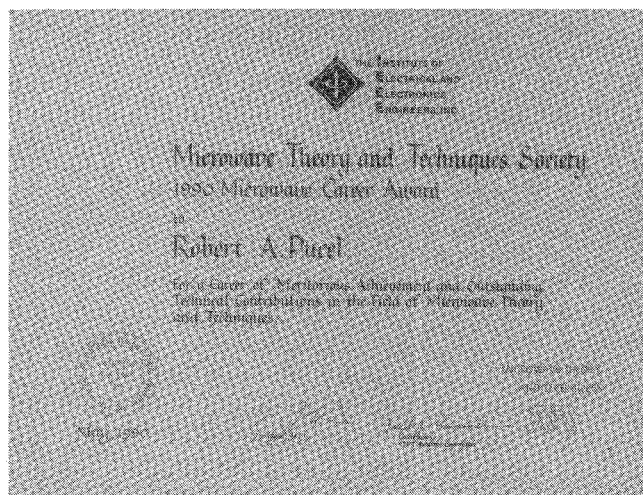
Robert A. Pucel (S'48-A'52-M'56-SM'64-F'79) received the bachelor's and master's degrees from the Massachusetts Institute of Technology in 1951 as a communications engineer. While at MIT he was enrolled in the Cooperative Course Program and received his first experiences in industry with the General Electric Company at the new Electronics Park in Syracuse, NY. After working for a year at the newly formed Research Division at Raytheon, he returned to MIT to embark on a doctoral program. His doctoral research was in the emerging field of time-domain synthesis, which was being developed at MIT under the late Prof. E. A. Guillemin, a world authority on network theory.

Following completion of his doctoral program in 1955, Dr. Pucel returned to the Research Division at Raytheon as a member of the Theoretical Physics Group. While a member of this group, he collaborated on several basic theoretical studies of bipolar transistors and their potential for high-frequency operation. This research was described in several publications. He remained in this group for approximately seven years, after which he turned his attention to emerging new microwave devices such as the tunnel diode. In 1962 Dr. Pucel developed and published the first comprehensive analysis of the tunnel diode as a

microwave mixer. About this same time he joined a group which was developing and characterizing ferroelectric materials for microwave applications. Two years later, in 1964, he proposed the use of high- K dielectric substrates such as rutile and alumina for miniaturization of microwave circuits to better accommodate the small dimensions of the semiconductor devices being developed as high-frequency components, a new concept then. He was asked to form a group to exploit these ideas as well as to establish a supporting microwave semiconductor laboratory. It was during this five-year period that Dr. Pucel collaborated on some very basic studies of propagation of microwave signals on conductors printed on dielectric and magnetic substrates, now known as microstrip. Two results of this study were the discovery of dispersion and a more accurate method of calculating conductor losses on microstrip. These results formed the basis of much later research by others.

The administrative demands of managing a large group soon convinced Dr. Pucel to return to full-time technical work and he asked to be relieved of his duties to join a newly formed microwave bipolar group in another division. It was during this three-year period, from 1969 to 1972, that he and a colleague developed (and later patented) a new means of interconnecting individual cells of a power transistor, a technique later to be known as the air bridge. Returning to the Research Division full-time in 1972, he collaborated on fundamental studies of most major new microwave device developments such as avalanche diodes and gallium arsenide FET's. These studies, which were described in numerous technical publications, covered not only the signal theory of these devices but also the noise properties. The new model for the GaAs FET served as the basis for most later treatments. In 1974 Dr. Pucel was promoted to the position of Consulting Scientist at Raytheon, its highest technical level. During this period he, with his longtime colleague Daniel Massé, conducted a theoretical and experimental study of the FET mixer. The publication of this research earned the 1976 Microwave Prize from by the MTT Society.

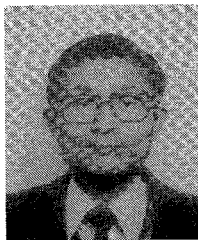
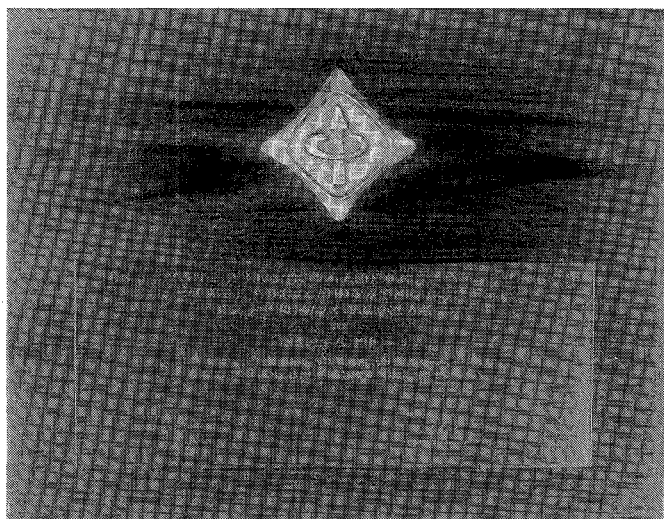
In 1978 Robert Pucel and his colleagues embarked on an intensive research program to determine the feasibility of printing entire microwave circuits on GaAs chips, a technique now known as the monolithic microwave integrated circuit (MMIC) approach. The development of this concept has dominated the microwave field since that time. Dr. Pucel published one of the first papers on this topic, in 1979. In recognition of his pioneering work in this field, the MTT Society selected him in 1981 to be its National Lecturer on MMIC's. In this role, and during the years to follow, he delivered approximately 80 lectures to promote the MMIC concept. As further recognition of his contributions to this field he was invited by the IEEE in 1984 to be the Editor of the IEEE Press reprint volume on MMIC's. Dr. Pucel has authored over 80 technical papers and two book chapters on microwave subjects and holds 21 patents on various microwave components. In 1987 he was granted an Excellence in Technology Award by Raytheon, its most prestigious award, in recognition of his technical contributions.



Microwave Prize

The Microwave Prize is awarded annually to the author or authors of a paper published in the IEEE TRANSACTIONS ON MICROWAVE THEORY AND TECHNIQUES, the IEEE PROCEEDINGS, or another IEEE journal which is judged to be the most significant contribution to the society's field of interest in the year preceding the selection. The award consists of a certificate, \$1000 (multiple authors—up to four—receive \$500 each), and a feature publication in the MTT-S TRANSACTIONS.

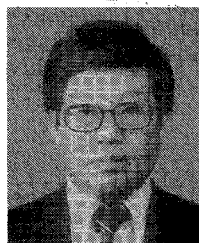
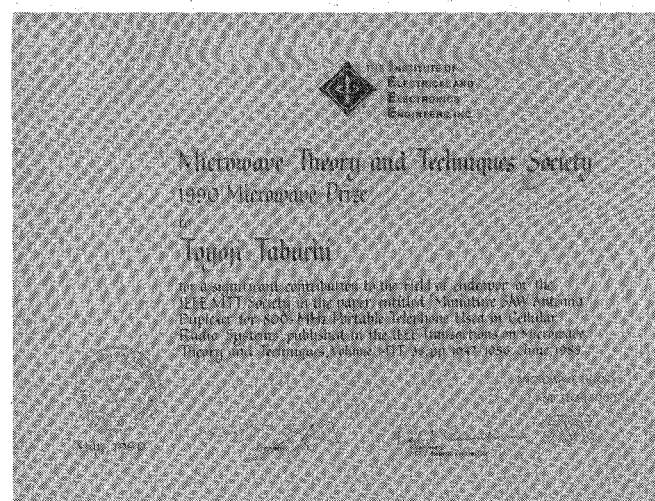
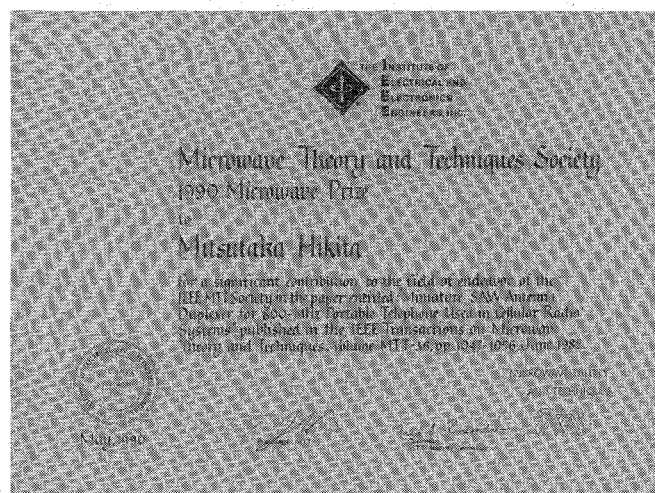
The 1990 Microwave Prize was awarded to Dr. Mitsutaka Hikita, Mr. Yoshikatsu Ishida, Mr. Toyoji Tabuchi, and Mr. Kazuhito Kurosawa, all with Hitachi, for their paper "Miniature SAW Antenna Duplexer for 800-MHz Portable Telephone Used in Cellular Radio Systems," which appeared in the June 1988 issue of the IEEE TRANSACTIONS ON MICROWAVE THEORY AND TECHNIQUES (vol. 36, pp. 1047–1056).



Mitsutaka Hikita (M'88) received the B.S., M.S., and Ph.D. degrees in electronics engineering, all from Hokkaido University, Sapporo, Japan, in 1972, 1974, and 1977, respectively. From 1977 to 1978, he was a Postdoctoral Fellow at Hokkaido University.

In 1978, he joined the Central Research Laboratory, Hitachi, Ltd., Tokyo. From 1972 to 1978, he was engaged in research on electromagnetic field problems, microwave acoustics, and acousto-optic interactions. From 1978 to 1983, he worked on high-performance SAW filters for radio communications equipment. Recently, he has been engaged in RF system design for cellular radio as well as in advanced applications of SAW technologies. Also since 1986, he has been a Senior Researcher and Group Leader of the SAW development and design department at the laboratory.

Dr. Hikita is a member of the Institute of Electronics and Communication Engineers of Japan.



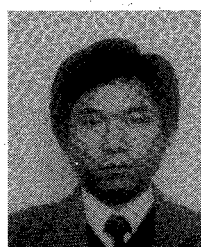
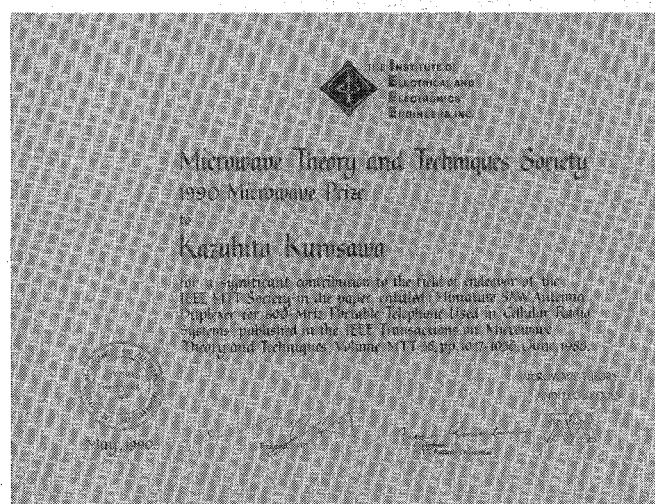
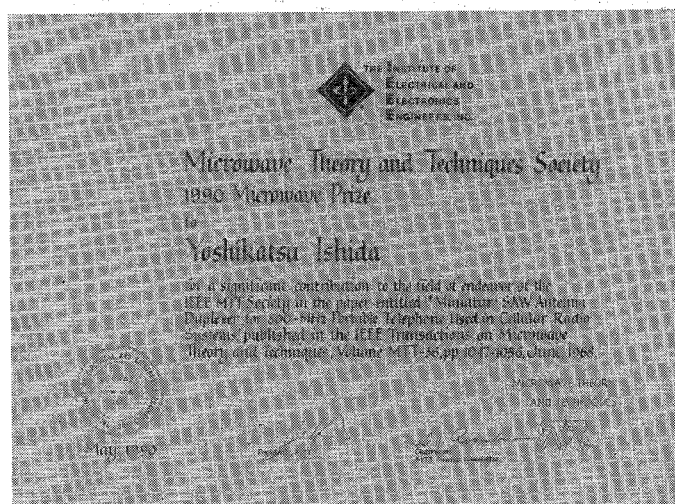
Yoshikatsu Ishida graduated from the electrical course of the Miyazaki Technical High School, Miyazaki, Japan, in 1963.

He joined the Taga Works, Hitachi, Ltd., Ibaragi, in 1963. Since joining Hitachi's Tokai Works in 1973, he has been engaged in the development of audio equipment, SAW filters for cellular radio, and SAW filter application devices.



Kazuhito Kurosawa received the B.S. degree in electronics engineering from Ibaragi University, Ibaragi, Japan, in 1985.

He joined Tokai works, Hitachi, Ltd., in 1985 and has since been engaged in the development of SAW filters. He is a member of the Institute of Electronics and Communication Engineers of Japan.



Toyoji Tabuchi graduated from the electrical course of the Tadotsu Technical High School, Kagawa, Japan, in 1967.

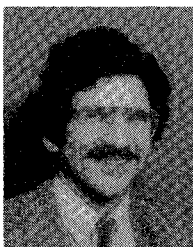
He joined the Central Research Laboratory, Hitachi, Ltd., Tokyo, in that year and worked on laser applications and liquid crystal devices until 1979. Since 1980, he has been engaged in research on low-loss SAW filters and their applications to cellular radio. He is a member of the Institute of Electronics and Communication Engineers of Japan.

Microwave Application Award

The Microwave Application Award is presented periodically to an individual for an outstanding application of microwave theory or techniques. The eligibility requirements are the creation or novel use of a device, component, or technique. This year's recipient is Allen F. Podell. His citation reads "For Pioneering Practical GaAs MMIC Circuits for Commercial Use in the Form of a Single Chip Microwave Radio for Satellite TVRO Systems." The award consists of a certificate and \$1000.

Mr. Podell has long been an innovator and leader in the microwave field. He has been responsible for novel

circuit and product designs at a number of leading U.S. microwave companies. In fact, he was a founder of two of them. In recent years he has been a leading proponent of MMIC technology and its commercial application. He has innovated the use of cell libraries for MMIC design, interactions with foundries, and a design philosophy that attempts to match the capabilities of MMIC's with system performance needs.

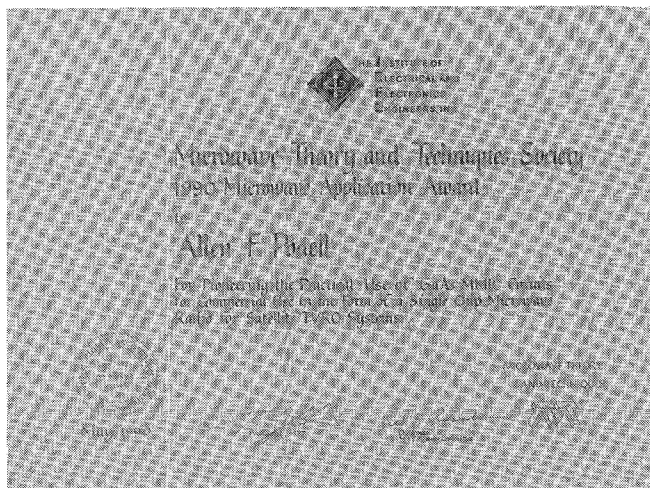


Allen F. Podell (S'60-M'61-SM'77) is Senior Vice President and Director of Technical Development at Pacific Monolithics, Inc., Sunnyvale, CA. He received the B.S. degree in engineering physics from Cornell University and completed graduate courses at the University of California and Harvard.

He was a cofounder of Anzac Electronics, where from 1960 to 1964 as chief engineer he developed a unique line of ultra-broad-band RF couplers, mixers, combiners, and switches. He

was a Peace Corps volunteer from 1964 to 1966 and managed road construction performed by 350 Tanzanian laborers. He returned to Anzac from 1966 to 1968, and for the following two years he was with Adams Russell as Corporate Director of Product Innovation. There he developed numerous components, including broad-band hybrids, transformers, phase shifters, amplifiers, and special-purpose test equipment. He has held key positions at Stanford Research Institute (1970-1972), Hewlett-Packard (1972-1977), and Varian Associates (1977-1978). He formed Allen F. Podell & Associates (1978-1984), a consulting firm working on microwave products and electromechanical applications, some of which appeared in the Cuisinart Food Processor. In 1984 he was with the nucleus who founded Pacific Monolithics, Inc.

Mr. Podell has written over 30 technical papers and is the author or coauthor of 20 U.S. patents. He is a regular participant in MTT-S and other IEEE panels and conferences.



Pioneer Award

The recipient of the first MTT-S Pioneer Award is Dr. Hatsuaki Fukui. This award recognizes important technical contributions that have had a continuing impact on the practice of microwave engineering for a period

exceeding 20 years. Dr. Fukui is cited "For the Introduction of Constant Noise Figure and Constant Gain Circles on the Smith Chart, and Their Impact on Microwave Amplifier Design." The work was reported in his paper "Available Power Gain, Noise Figure, and Noise Measure of Two-Ports and Their Graphical Representations" (IEEE TRANSACTIONS ON CIRCUIT THEORY, vol. CT-13, pp. 137-142, June 1966). The award consists of a bronze plaque and \$1000.



Hatsuaki Fukui (SM'69-F'83), born in Yokohama, Japan, in 1927, graduated summa cum laude in electrical engineering from Miyakojima Technical College, Osaka, Japan, and received the doctor of engineering degree in electrical engineering from Osaka University, Osaka.

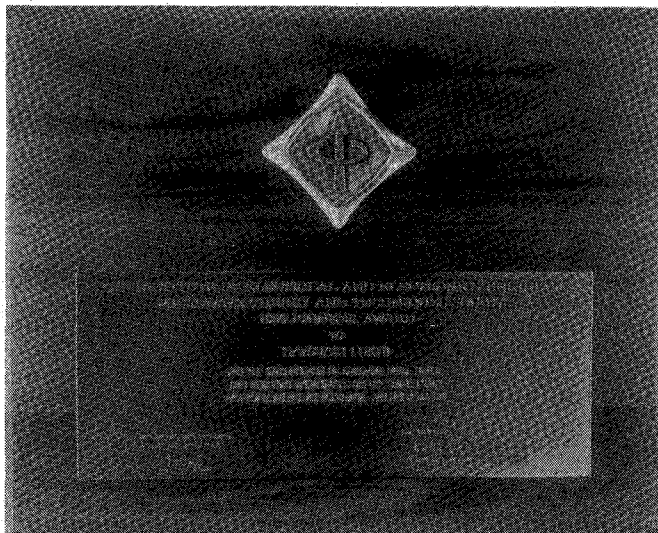
Between 1949 and 1954 he did research on microwave electron tubes at Osaka City University, Osaka. He then worked as a design engineer of microwave test equipment at the Shimada Physical and Chemical Industrial

Company, Tokyo. In 1955 he joined Tokyo Tsushin Kogyo (Sony Corporation since 1958), Tokyo, and was engaged in the newly born semiconductor industry. In the Semiconductor Division he started as a Ge crystal grower and later headed a group working on new transistors to be used for the world's first commercial solid-state television receivers. He is regarded as a pioneer in the realization of the all-transistor TV, including his fundamental work on power-efficient picture tubes. In 1960, after successfully producing the prototype transistors for TV use, he was assigned to manage the entire Esaki tunnel-diode operation and was responsible for design theory, fabrication, evaluation, characterization, application development, marketing, sales promotion, and customer education. On the Esaki diode he authored about 40 papers, including one for ISSCC, and a book. In January 1962, he was transferred to the Engineering Division as manager of the Advanced Technology Department to develop such consumer electronics products as solid-state UHF TV's and advanced audio equipment.

In October 1962, Dr. Fukui joined Bell Telephone Laboratories, Murray Hill, NJ, as a Member of the Technical Staff. He first worked on microwave transistor amplifiers for the Nike-Zeus. Later his work covered microwave semiconductor devices, such as Ge and Si bipolar transistors, GaAs bulk-effect devices, and Si avalanche diodes, and their circuit applications. From 1966 to 1973 he led research and development work on electro-optical devices and subsystems for future PICTUREPHONE use, including storage tubes, cathode-ray tubes, phosphors, plasma display devices and Si diode-array camera tubes. His group was the last developer of electron tubes at Bell Labs. During this period, the feasibility of transmitting high-resolution video signals through the PICTUREPHONE channel was demonstrated. Dynamic video pictures with multi-gray-scale were shown on a newly developed plasma panel in a PICTUREPHONE set replacing the CRT. He also supervised work on the new vacuum deposition technique for III-V compounds, which brought the invention of the gas-source MBE and its practical use in 1970. From 1973 to 1981 he was involved in the GaAs MESFET development project, working on device modeling, design, fabrication, characterization, and reliability study for both low-noise and high-power applications. In 1981 he became the technical liaison to accommodate long-wavelength lasers for undersea lightwave communication systems. At the end of 1989 he retired from AT&T Bell Laboratories.

Dr. Fukui is the author or coauthor of three technical books, the editor of an IEEE Press book, and a contributor to a semiconductor handbook. He has published more than 100 technical papers. He is a member of the Microwave Theory and Techniques Society, serving on the Editorial Board, and a member of the IEEE Committee on U.S. Competitiveness. As a member of the Electron Devices Society, he served on the IEEE Standards Committee (P642) on Microwave Transistor Characterization. He was a member of the Steering Committee of

the Institute of Television Engineers of Japan from 1973 to 1974. He received the 1980 Microwave Prize from the IEEE MTT-S and the Inada Award from the Institute of Electrical Communication Engineers of Japan in 1959 for "Linear high-power amplifier using SCR on PWM mode." Since 1969 he has been listed in Marquis's *Who's Who*, including *Who's Who in America*, *Who's Who in the World*, *Who's Who in Industry and Finance*, and *Who's Who in Frontiers of Science and Technology*.



Distinguished Service Award

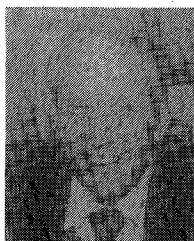
The Distinguished Service Award honors an individual who has given outstanding service over a sustained period for the benefit and advancement of the Microwave Theory and Techniques Society. This year's recipient is H. George Oltman, Vice President and Director of Engineering at Tecom Industries, Chatsworth, CA.

George Oltman has had a longstanding commitment to MTT-S and IEEE. In 1956 he was chairman of the Albuquerque PGAP. Later he was Los Angeles chapter chairman of both G-MTT and G-AP and vice chairman of the Los Angeles council. His service to MTT-S spans two decades in many different posts and areas of responsibility. These may be grouped as membership services/chapter activities, publications and technical committees, finance and administration, awards, and meetings and symposia.

He was elected to AdCom in 1973 and later served as Vice President (1983) and President (1984). As President he initiated programs and policies still in existence, including elevating the status of International Liaison, MTT-S sponsorship of PNMS (the Committee to Promote National Microwave Standards), and enlarging the role of previous leaders, which has now evolved into the Past Presidents' Council. He organized the Site Negotiating Committee to promote better service and lower costs at the International Microwave Symposium: he has been a member of that committee since 1984 and its chairman since 1987.

He has long been interested in microwave measurements and was instrumental in the affiliation of ARFTG with MTT-S. He was chairman of MTT-11, the Technical Committee on Microwave Measurements (1980-1985). He was associate editor of the *TRANSACTIONS* for Institutional Listings (1973-1974) and for Applications (1975-1982). He was chairman of the MTT-S Finance Committee (1975-1979) and performed in that capacity for the 1981 International Microwave Symposium.

George Oltman continues to serve MTT-S, not only by way of his specific responsibilities, but with his steady view and sweet reason, qualities highly valued by AdCom. We proudly name him as the 1990 Distinguished Service Award winner. The citation reads "For His Outstanding and Dedicated Service to the Society." The award consists of a bronze plaque and a certificate.



H. George Oltman, Jr. (A'50-M'55-SM'57-F'83) graduated from the University of New Mexico in 1950 with a degree in physics. In that year he joined the antenna laboratory of the Sandia Corporation and the IRE. He later earned the master's degree in physics at the same institution and has been a member of the MTT-S since 1956. His physical sciences background and the broad range of interests that have resulted are chiefly responsible for the wide range of scientific and engineering work in which he has been

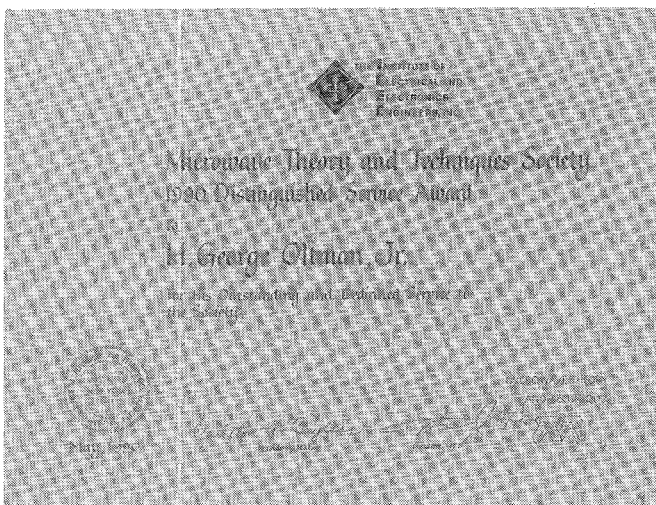
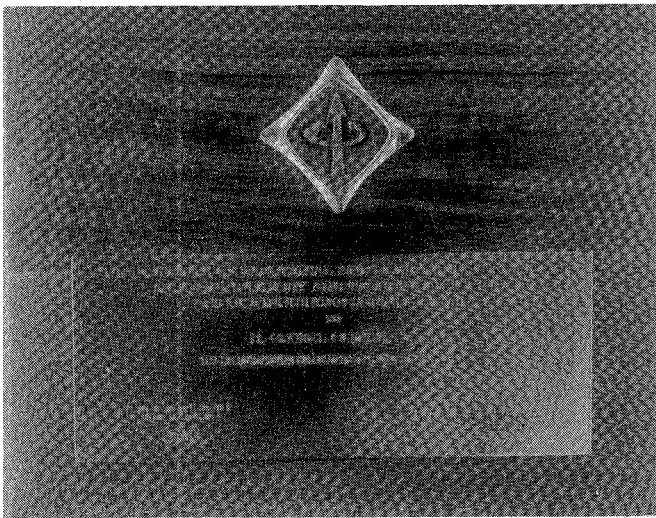
engaged. This work focuses on wave motion and circuits, including antennas, filters, couplers, and other passive components; millimeter-wave components; microwave acoustics; and microwave sources, including vacuum tubes and Gunn, IMPATT, and TRAPATT solid-state sources.

Mr. Oltman holds four patents in vacuum tubes, microwave acoustics, and light deflection, four patents on techniques for summing the powers of solid-state sources, one patent in slotline couplers, and two on printed circuit antennas. He received the Lawrence A. Hyland Patent Award, Hughes' most prestigious, for his microstrip dipole antenna patents. He has published 35 papers in the above fields.

He is currently Vice President and Director of Engineering at Tecom Industries. Before joining Tecom, he was a senior scientist in the Missile Systems Division of Hughes Aircraft and a member of the technical staff with the Physical Research Center at TRW Systems. Other positions he has held include one on the engineering staff at Rantec and antenna group manager at Electronic Specialty.

Active in the IEEE since 1956, Mr. Oltman was Chairman in that year of the Albuquerque PGAP. Since then he has been Los Angeles Chapter Chairman of both G-MTT and G-AP and vice chairman of the Los Angeles council. He worked on AdCom for several years, before being elected to the Committee in 1973. Prior to his election as President of AdCom for 1984, he published the *MTT-S Directory*, served as finance chairman, was associate editor of the *TRANSACTIONS*, and served as Vice President in 1983. In 1984 he was elected president of the IEEE Microwave Theory and Techniques Society. Mr. Oltman is a fellow of the British Interplanetary Society and a member and past president of the Automatic RF Techniques Group. In 1984 he was awarded the Distinguished Service Award by the ARFTG. He was elected to both Sigma Xi and Kappa Mu Epsilon. He is listed in the 43rd edition of *Who's Who in America*.

His wife is the former Loretta M. Nemes of Princeton, NJ. He has five children, Carolyn, Joan, David, Brian and Neil. He has resided in Woodland Hills, CA, for the past 30 years.

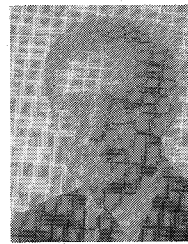


N. Walter Cox Service Award

The N. Walter Cox Award honors a contributor to MTT-S who is cited "For Exemplary Service Given in a Spirit of Selfless Dedication and Cooperation." It has been established in recognition of the qualities of N. Walter Cox and his service to the society prior to his untimely death in 1988.

Walter Cox approached every person or problem with a positive and enthusiastic attitude. He was diligent and flexible and untiringly gave support to others. The N. Walter Cox Award is given aperiodically to a society volunteer whose efforts on behalf of MTT-S best exemplify this spirit and dedication. It consists of a plaque.

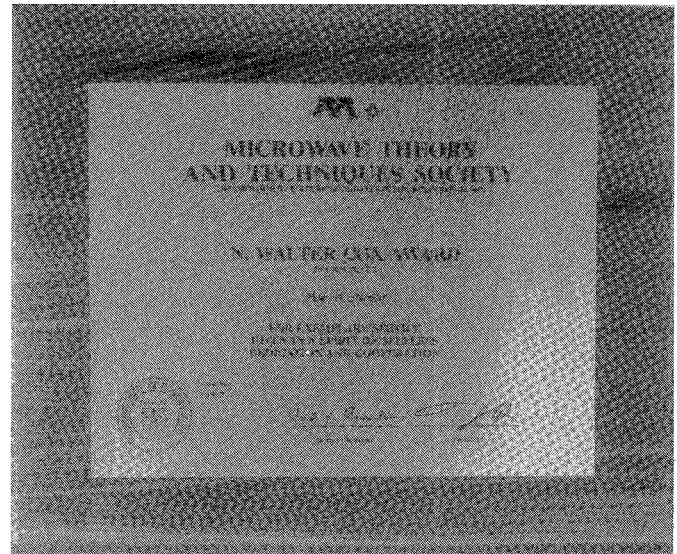
This year's recipient is Peter W. Staecker. He joined the MTT-S AdCom as secretary in 1985 and became an elected member in 1986. In his brief time on AdCom he has distinguished himself not only in his highly ethical and effective performance on his assigned responsibilities, but also in his participation in AdCom discussions. He is often a voice of calm intelligence in moments of emotional debate.



Peter W. Staecker (S'63-M'72-SM'87) received the B.S. degree from MIT in 1964 and the Ph.D. degree from the Polytechnic Institute of Brooklyn in 1970, both in electrical engineering.

From 1972 to 1986 he was a Staff Engineer at MIT Lincoln Laboratory, where he worked on microwave device and circuit designs in support of Lincoln's satellite communication hardware efforts. In 1986, he joined M/A-COM's Subsystems Division, where he has been engaged in the technical direction of a number of millimeter-wave power generation programs in that division's Advanced Programs activity. Active current projects include the development of efficient FET power modules and efficient high-power multiplier diodes for millimeter-wave transmitter applications, as well as subassembly integration techniques.

Dr. Staecker has been a member of the Administrative Committee of the IEEE Microwave Theory and Techniques Society since 1985. He has served in numerous committee positions in AdCom, including Secretary and *MTT Newsletter* Editor. He is currently serving as an Associate Editor of the IEEE TRANSACTIONS ON MICROWAVE THEORY AND TECHNIQUES. He was Chairman of the Boston MTT Chapter in 1981, and has more recently served as Chapter Coordinator of IEEE Boston Section activities. Since 1983, he has been a member of the Technical Program Committee of the MTT-S International Microwave Symposium, and is General Chairman of the 1991 MTT-S International Microwave Symposium Steering Committee.



New IEEE Fellows

Twenty-eight MTT-S members were elected to the grade of Fellow effective January 1, 1990. Of these, 10 were evaluated by MTT-S and 18 by other societies.

The grade of Fellow is conferred in recognition of unusual professional distinction. It is awarded at the initiation of the IEEE Board of Directors after a rigorous nomination and evaluation process. Individuals receiving this distinction have demonstrated extraordinary contributions to one or more of the fields of electrical engineering, electronics, computer engineering, and related arts and sciences. This grade is not conferred automatically upon nomination; only a fraction of those nominated are honored by elevation to Fellow.

Nine recipients chose to receive their Fellow certificates at the 1990 International Microwave Symposium. Dr. Kiyu Tomiyasu made the presentation at the Banquet.

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| John W. Archer | "For contributions to low-noise millimeter-wave design." | Tullio E. Rozzi | "For contributions to the theory and modeling of propagation in waveguides with discontinuities." |
| Morris Engelson | "For contributions to the practice and application of spectrum analysis, and leadership in its test instrumentation." | Roberto Sorrentino | "For contributions to the modeling of planar and quasi-planar structures for microwave and millimeter-wave circuits." |
| Anand Gopinath | "For contributions to the analysis of microstrip discontinuities and to the development of microwave integrated circuits." | Rodney S. Tucker | "For contributions to microwave frequency optoelectronic circuits and the direct modulation of high-speed semiconductor lasers." |
| Louis S. Napoli | "For research in GaAs power transistors at microwave frequencies." | Tsukasa Yoneyama | "For contributions to the development of nonradiative dielectric waveguide technology." |
| John M. Owens | "For contributions to the understanding and application of magnetostatic waves in the microwave frequency bands." | | |
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