

1991 MTT-S Awards

F. J. Rosenbaum, *Fellow, IEEE*

THE 1991 MTT-S awards were presented at the Awards Banquet in Boston in the company of veterans of the MIT Radiation Laboratories whose 50th anniversary was commemorated during the Symposium. It was a fitting tribute and an emotional experience to be in the company of so many of the pioneers who made fundamental contributions to the practice of microwave engineering. The ceremony also highlighted the international scope of microwave engineering today. Awards were presented by Society president Ferdo Ivanek to the following recipients:

Microwave Career Award	Sogo Okamura
Microwave Prize	Masayoshi Aikawa
	Tsuneo Tokumitsu
	Shinji Hara
Microwave Application Award	Eric W. Strid
	K. Reed Gleason
Pioneer Award	Robert H. Dicke
Distinguished Service Award	Charles T. Rucker
N. Walter Cox Award	Hal Schrank

The success of the Society is in large part the product of the concerted efforts of many dedicated volunteers. In addition to the major technical awards, several Society members received service awards. The Past President's Pin and a plaque were presented to Tatsuo Itoh. Certificates of Recognition were awarded to several individuals who made significant contributions to the Society. These include 1990 International Microwave Symposium General Chairman John Wassel, and 1990 Technical Program Committee Co-Chairmen Tatsuo Itoh and Randall Lehmann. Alejandro Chu was honored as 1990 General Chairman, GaAs Microwave and Millimeter-Wave Monolithic Circuits Symposium. Three retiring MTT-S Administrative Committee members, Martin V. Schneider, Gary G. Lerude, and Rodney S. Tucker were recognized for their valuable contributions, and John T. Daly was commended for his service as Transactions Associate Editor for patents.

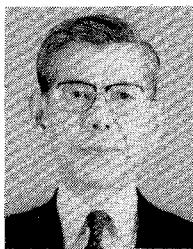
MTT SOCIETY AWARDS

Microwave Career Award

The Microwave Career Award is the highest honor bestowed by the Society. It recognizes an individual for a lifetime career of meritorious service and technical excellence in our field. The 1991 award was made to Professor Sogo Okamura of Tokyo Denki University, Tokyo, Japan.

Professor Okamura's contributions to microwave technology as a distinguished researcher and teacher have had

an impact not only in Japan, but worldwide. In his technical work in microwave communications he engaged in the measurement of atmospheric attenuation at millimeter frequencies and discovered and theoretically verified the effect of polarization on rain attenuation. This work contributed to the development of EHF satellite communications technology. He developed a precise comparative measurement technique for microwave power standards and noise sources, one of which was used as the domestic noise standard in Sweden and elsewhere for many years. He is also responsible for important contributions in high sensitivity detection, electron tubes, negative resistance amplifiers, and microwave solid state devices. During his prolific career he has published some 37 articles and nine books and book chapters. His Career Award citation reads: "For a Career of Meritorious Achievement and Outstanding Technical Contributions in the Field of Microwave Theory and Techniques." The award consists of a plaque, certificate, and \$2000.

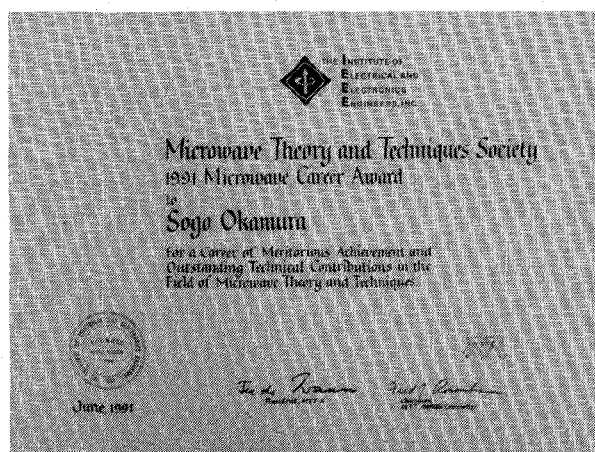
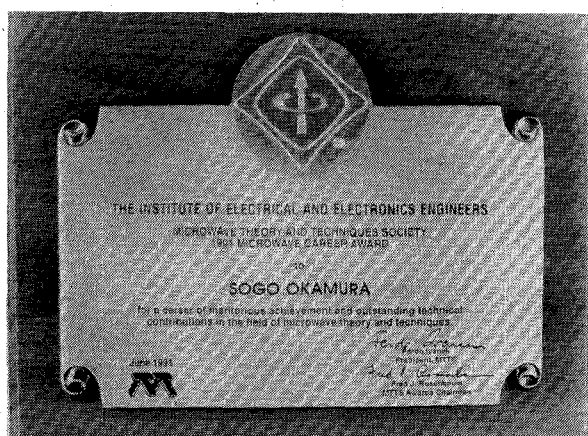


Sogo Okamura (A'52-M'57-F'73-LF'86) was born in Mie Prefecture, Japan, in 1918. He received the Bachelor of Engineering degree in electrical engineering in 1940 and the Doctor of Engineering degree in 1951, from the University of Tokyo.

In 1940, immediately after graduating from the University of Tokyo, he was appointed Lecturer at the same university. He was, however, enlisted in the Navy in the same year, and engaged in the research and development on the S-band radar at the Naval Research Institute until the end of the World War II. After the war he returned to the University and served as Associate Professor in 1947, Professor in 1951, working on the research and education in the field of electronics particularly microwave engineering. In 1973 he was appointed Dean of the Faculty of Engineering, and then from 1975 to 1977 served as Senior Adviser to the President of the University of Tokyo. While working in the University of Tokyo, he was asked to be, concurrently, Head of the Millimetric Wave Section in the Radio Research Laboratories, Ministry of Post and Telecommunication, and started working on the measurement of the atmospheric attenuation in the millimeter wave frequency region. After retiring from the University of Tokyo, he served as Professor of Engineering at the Tokyo Denki University and also served in the Japan Society for the Promotion of Science (JSPS) as an Auditor, Executive Director, and Director-General until 1985. He is currently President of the Tokyo Denki University, a Senior Adviser to the Rector of the United Nations University, a member of the Science Council of Japan and Professor Emeritus of the University of Tokyo. During his career, he participated in various activities as a scholar. He was Director of the Japanese National Railways (1981-1985), a member of the Japanese National Commission for UNESCO (1983-present), a Councillor and Chairman of the Radio, Regulatory Council (1981-1990), a Councillor of the Aeronautical, Electronics, etc. Council (1980-1987), member and Vice-Chairman of the Committee for Scientific and Technological Policy (OECD) (1975-1979), Science Adviser at the Ministry of Education, Science and Culture (1975-1978), Councillor of the Science Council (1974-1986), Councillor of the Technical College Council (1972-1983),

Councillor of the Radio Technical Council (1970–1978), Councillor of the Electronics Council (1969–1978), member of the Broadcast Engineering Council (NHK) (1971–present), member of the Technical Advisory Committee (NTT) (1967–1971) and consultant to the Electrical Communication Laboratories (NTT) (1969–1973).

Dr. Okamura is an honorary member of the Institute of Electronics, Information and Communication Engineers of Japan (IEICEJ) and the Institute of Electrical Engineers of Japan (IEEJ), and a Fellow of the IEE. He was President of the IEICEJ (1971–1972) and the IEEJ (1983–1984), Chairman of the Tokyo Section (1985–1986) and member of the Fellow Committee (1987–1989) of the IEEE, Vice President (1981–1987), and Chairman of the Japanese National Committee (1978–1982) and Chairman of Commission A (1978–1981) of the International Union of Radio Science. Dr. Okamura is the recipient of the following awards: Second Order of Merit with the Rising Sun (1989), Medal of Honour with Purple Ribbon (1984), Order of Gorkha Dakshina Dahu, Third Class (1979), Broadcast Culture Prize (1979), Distinguished Service Award from the IEE (1985), and from the IEICEJ (1974).



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, *Proceedings of the IEEE*, or another official IEEE publication, which is judged to be the most significant contribution in the field of interest of the Society in the calendar year preceding that in which the selection is made. The award consists of a certificate, and a check for \$1000.

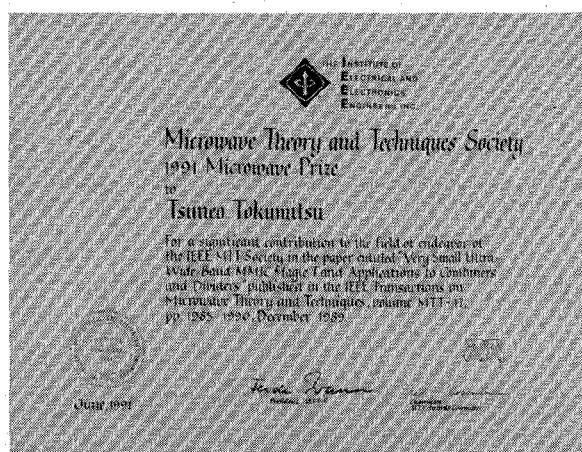
The 1991 Microwave Prize was awarded to Mr. Tsuneo Tokumitsu, Mr. Shinji Hara, and Dr. Masayoshi Aikawa, for their paper, "Very Small Ultra-Wide-Band MMIC Magic T and Applications to Combiners and Dividers," which appeared in the December 1989 issue of IEEE TRANSACTIONS ON MICROWAVE THEORY AND TECHNIQUES (vol. 37, pp. 1985–1990).



Tsuneo Tokumitsu (M'88) was born in Hiroshima, Japan, in 1952. He received the B.S. and M.S. degrees in electronics engineering from Hiroshima University, Hiroshima, in 1974 and 1976, respectively.

He joined Yokosuka Electrical Communication Laboratories, Nippon Telegraph and Telephone Public Corporation (NTT), Kanagawa, Japan, in 1976. He had been involved in developmental research on microwave and millimeter-wave GaAs FET circuits and GaAs MMICs including low noise, high power, wide-band amplifiers, frequency converters for space applications. In September 1986, he joined ATR Optical and Radio Communications Research Laboratories, Osaka, Japan, as a Senior Researcher, on leave from NTT. At ATR his primary interests were in achieving FET-sized, wide-band circuit function modules, miniaturized, multilayer passive MMIC's on GaAs substrate surface, active inductors, and also in their applications to highly integrated MMIC's for RF signal processing. In February 1990, he joined NTT Radio Communication Systems Laboratories, Kanagawa, Japan, as a Senior Research Engineer, where he has been engaged in development of monolithic, high-linearity TR modules for digital radio trunk transmission systems, and in research on RF signal processing MMICs.

Mr. Tokumitsu is a member of the Institute of Electronics, Information and Communication Engineers of Japan.

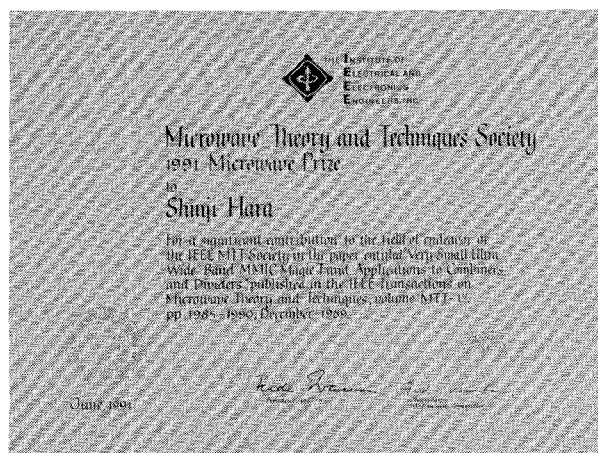


Shinji Hara (M'88) was born in Toyama, Japan, in 1960. He received the B.E. and M.E. degrees in electronics engineering from Waseda University, Tokyo, Japan, in 1982 and 1984, respectively.

In 1984, he joined Tokyo Research Laboratories, Sharp Corporation, Chiba, Japan. From September 1986 to August 1989, he was a researcher at ATR Optical and Radio Communications Research Laboratories, Osaka, Japan, on leave from Sharp Corporation. At ATR he was engaged in research on active inductors as well as on circuit design techniques to realize highly integrated MMIC's. He is now with Central Research Laboratories, Sharp Corporation, Nara, Japan. He is presently

engaged in research and development on MMICs for portable telecommunication equipment.

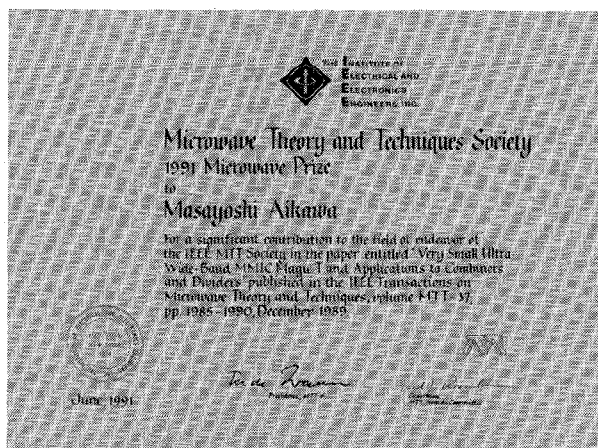
Mr. Hara is a member of the Japan Society of Applied Physics and the Institute of Electronics, Information and Communication Engineers of Japan.



Masayoshi Aikawa (M'78) was born in Saga, Japan, on October 16, 1946. He received the B.S., M.S. and Dr. Eng. degrees in electronics engineering from Kyushu University, Fukuoka, Japan, in 1969, 1971, and 1985, respectively.

In 1971, he joined the Musashino Electrical Communication Laboratories, Nippon Telegraph and Telephone Public Corporation (NTT), Tokyo, Japan, where he did research and development on microwave integrated circuits (MIC's), in particular, "Both-Sided MIC's" and microwave and millimeter-wave integrated circuits (MMIC's), and equipment for 20 GHz digital radio trunk transmission systems and 26 GHz subscriber radio systems. In 1986, on leave from NTT, he joined ATR Optical and Radio Communications Research Laboratories, Osaka, Japan, where he was engaged in research on basic techniques such as highly integrated MMIC's and RF signal processing for future mobile communications. He is now with the NTT Radio Communication Systems Laboratories, Yokosuka, Japan, where he has been engaged in research and development on monolithic microwave and millimeter-wave integrated circuits and their applications to terrestrial, mobile and satellite communication systems.

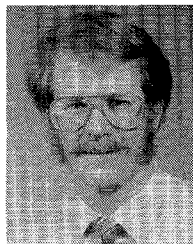
Dr. Aikawa is a member of the institute of Electronics, Information and Communication Engineers of Japan.



Microwave Application Award

The Microwave Application Award is presented aperiodically to individuals for an outstanding application of microwave theory and techniques. The eligibility requirements are the creation or novel use of a device, component or technique. This year's recipients are Eric W. Strid and K. Reed Gleason. Their citation reads "For The Development of Microprobe Technology, its Application to On-Wafer Test of Microwave Semiconductor Devices, and for Innovative Microwave Measurement Techniques." The award consists of a certificate and a check for \$1000.

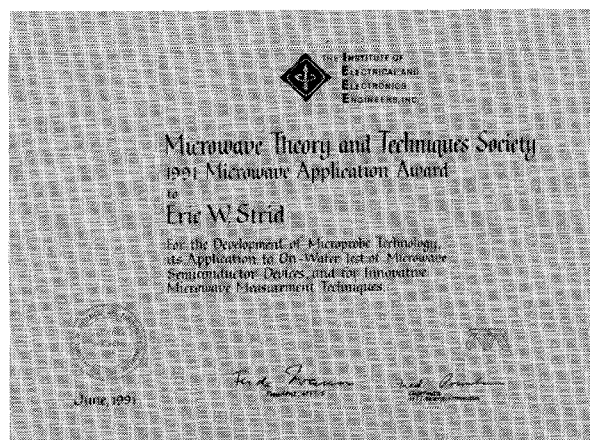
Strid and Gleason conceived and developed the technology for on-wafer probing. This innovation has become an enabling technology for the production of microwave monolithic integrated circuits (MMIC's). Moreover, it has led to new methods for the characterization of microwave semiconductor devices, microwave packages, and other microwave components. The recipients founded a successful company which provides probing devices to the industry.

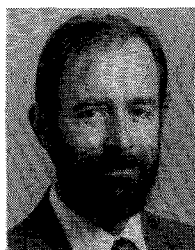


Eric W. Strid (S'75-M'76), received the S.B.E.E. degree from MIT in 1974 and the M.S.E.E. degree from the University of California at Berkeley in 1975.

He worked for Page Communications-Alaska on the Alaska Pipeline, and then joined Farinon Electric, San Carlos, CA, in 1976. At Farinon, he was mentored by Dr. Chi Hsieh and others while developing low-noise and high-power solid-state microwave amplifiers for telecommunications. In 1979 he joined the Applied Research Group of Tektronix, Inc., Beaverton, OR, where he designed and demonstrated various digital and analog GaAs ICs for instrumentation applications. In 1984 and 1985 he worked at TriQuint Semiconductor, Inc., as acting Design Manager. Today, he is President at Cascade Microtech, Beaverton, OR, and has taken on more managerial tasks.

Mr. Strid has written over 30 technical papers, authored or co-authored eight U.S. patents, and participated in various MTT panels and conferences. In 1987 he received the ARFTG Automated Measurements Award.





K. Reed Gleason (M'68) received the B.S.E.E. degree from California Institute of Technology in 1967.

He then joined the Naval Research Laboratory, where he worked on GaAs detector and mixer diodes, Si TRAPATT diodes, and GaAs and InP FET's. He joined Tektronix in 1978, working on GaAs device physics. Presently, he is Vice-President of Advanced Development at Cascade Microtech, Beaverton, OR. At Tektronix, Gleason and Eric Strid were charter

members of the GaAs IC research team. Gleason was the device designer, and Strid was the IC designer, so both needed a faster and more accurate means of on-wafer RF measurements. Each contributed necessary innovations to create the first 18 GHz wafer probe demonstration, which was published in 1980. In 1983 Tektronix decided not to market the probes, and licensed Strid and Gleason to found Cascade Microtech, Inc., which develops and markets RF wafer probe products worldwide.

Mr. Gleason has served on the GaAs IC Symposium Technical Program Committee and chaired panel sessions. He has written over 15 technical papers and more than seven patents.



Pioneer Award

The Pioneer Award, established only last year, is intended to recognize contributions which have had major impact on our field and have stood the test of time. The basis for nomination is an archival paper in the field of interest of MTT-S published at least 20 years prior to the year of the award. It recognizes important technical contributions that have had a continuing impact on the practice of microwave engineering for a period exceeding two decades. The 1991 recipient is Robert H. Dicke, Albert Einstein Professor of Science, Professor of Physics Emeritus, at Princeton University.

Professor Dicke is cited "For the invention of the microwave radiometer." The work was reported in the paper: "The Measurement of Thermal Radiation at Microwave Frequencies," *Review of Scientific Instruments*, vol. 17, pp. 268-275, July 1946. In one paper Dr. Dicke, developed from fundamental principles, the theory and practice of radiometry at microwave frequencies. Furthermore, the basic technique used by him, front-end switching and phase sensitive detection, is widely used in high

sensitivity receivers. The work was done at the MIT Radiation Laboratory. The award consists a bronze plaque and a cash sum of \$1000.



Robert H. Dicke was born in 1916 and raised in Rochester, NY. His first two years as an undergraduate were spent at the University of Rochester where he majored in physics. He was offered a scholarship at Princeton and transferred there in 1937. He returned to Rochester as a graduate student in 1939 and received the Ph.D. degree in 1941. His thesis, on nuclear physics, was on the inelastic scattering of protons by stable nuclei. It was based on research performed in collaboration with John Marshall,

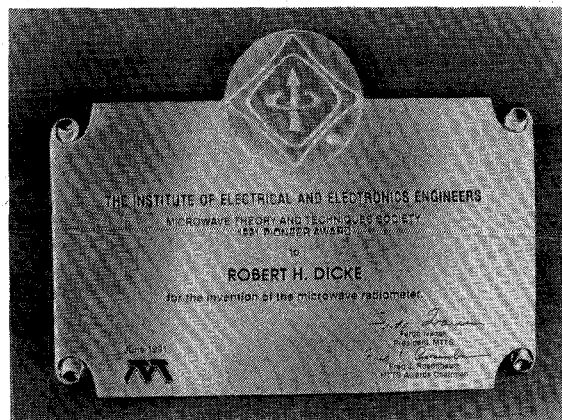
another graduate student.

In September 1941 he joined the Radiation Laboratory at MIT. He had been appointed an Instructor at Rochester, but at the urging of Lee A. Dubridge, the director of this new microwave radar laboratory and the chairman of the physics department at Rochester, he resigned this post. From 1941 until the demise of the Lab, he was a member of Group 41, Fundamental Developments, under the leadership of Harvard's E. M. Purcell in I. I. Rabi's division. At the Radiation Laboratory he worked on silicon detectors, antenna feed patterns, the theory of symmetric wave guide junctions and other problems. While there, he made a number of inventions of which the most important are probably the "magic tee," the microwave radiometer, chirp radar and monopulse radar. After the termination of the war he stayed for a few months to help write the *Radiation Laboratory Series*, principally vol. 8, which contains his theory of symmetric waveguide junctions.

Dr. Dicke joined the Princeton University Physics Department in March 1946 and was appointed the Cyrus Fogg Brackett Professor in 1957. He resigned this chair in 1975 to become the new Albert Einstein Professor of Science. He served as Chairman of the Department during the turbulent years of 1967-1970. He retired in 1984, but continues his research as the Albert Einstein Professor of Science Emeritus.

For his first decade at Princeton, his research and that of his graduate students was primarily on atomic physics: positronium, optical pumping, atomic clocks, electron and proton g-factors and hydrogen hyperfine structure. Since 1957 his research has been primarily on gravitation, relativity, cosmology, astrophysics and quantum measurement theory.

He has served on numerous advisory committees, including the National Science Board, the National Bureau of Standards Visiting Committee, the NAS Committee on Ballistic Acoustics (Kennedy assassination investigation), the NAS Panel on Scientific Communications and National Security, the NASA Lunar Ranging Team, the Associated Universities Board of Trustees, and the IBM Science Advisory Committee. He is a member of the National Academy of Sciences, the American Philosophical Society and the American Academy of Arts and Sciences. He has received the National Medal of Science (1971), the Count Rumford Award of the American Association of Arts and Sciences, the NASA Medal for Exceptional Scientific Achievement, the NAS Comstock Prize, and the Elliot Cresson Medal of the Franklin Institute.

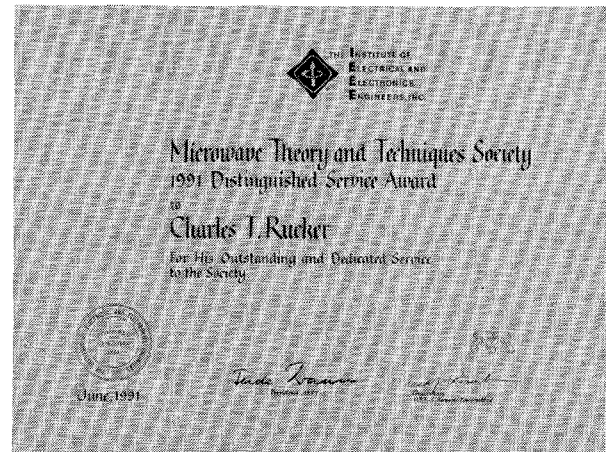
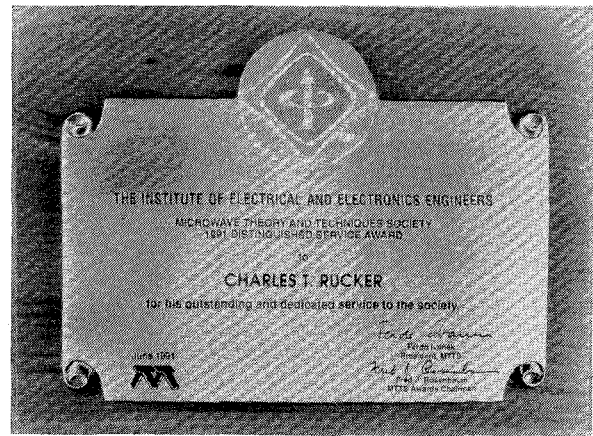


Distinguished Service Award

The Distinguished Service Award is presented to honor an individual who has given outstanding service over a period of years for the benefit and advancement of the Microwave Theory and Techniques Society. This year's honoree is Charles T. Rucker, Principal Research Engineer and Associate Director of the Georgia Institute of Technology Microelectronics Research Center, in Atlanta.

Charlie Rucker has demonstrated the qualities of commitment and dedication to the Society which he has served both honorably and well. His words of support and his wise observations have often eased AdCom past rough spots.

He has been active within the MTT-S, including a ten year stint as an Administrative Committee Member (1976–1986), MTT-S Secretary (1976), Vice-President (1982) and President (1983). He has continued to serve the AdCom as Awards Chairman (1986–1988) and he is a valued member of the Past Presidents Council (1986–present). Charlie has had a particular interest in the International Microwave Symposium. He has been a member of nearly all the Symposium Technical Program Committees since 1977. He was a member of the Steering Committee of the 1974 Symposium, held in Atlanta, GA, and he is Co-chairman of the 1993 Symposium Steering Committee. The citation for his richly deserved Distinguished Service Award reads "For his outstanding and dedicated service to the society." The award consists of a plaque and a certificate.



Charles T. Rucker (S'56–M'69–SM'78–F'82) went from the U.S. Navy (1950–1953) to Georgia Tech and received the B.E.E. degree in 1957.

He worked for Sperry Microwave Electronics from 1957 to 1971 as an Engineering Staff Consultant then transferred to the Sperry Electronic Tube Division in Gainesville, FL, where, from 1971 to 1973, he was a Senior Development Engineer. In 1973 he joined the Engineering Experiment Station at the Georgia Institute of

Technology, where he was first a Principal Research Engineer, and more recently serves as Associate Director of the Microelectronics Research Center.

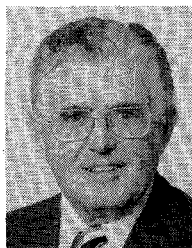
He has been actively engaged in advanced development and research tasks since 1957. During his 32 year tenure in the microwave area, he has participated in the growth of the microwave semiconductor field from one where radars used a single semiconductor diode to one where entire radars are built using sophisticated semiconductor and microelectronics technologies. He is an expert in microwave power combiners and has performed advanced research in this area for industrial firms and government agencies. In recent years he has participated in consulting activities related to SDIO sponsored radar and transmit/receive module programs sponsored by the U.S. Air Force. He has also been active recently in the evaluation of resonant tunneling devices.

Mr. Rucker has authored some 30 major reports and publications and holds two patents. He is an IEEE Centennial Medalist.

N. Walter Cox Award

The N. Walter Cox Award was established to perpetuate the memory of Walter Cox who worked generously and modestly for the benefit of the Society prior to his untimely death in 1988. It is granted to recognize an individual for his contributions to MTT-S and, in particular, for the manner in which they have been provided. The award is made aperiodically to a Society volunteer whose efforts of behalf of MTT-S best exemplify the spirit of Walter Cox. The citation reads: "For Exemplary Service Given in the Spirit of Selfless Dedication and Cooperation," and the award consists of a plaque.

This year's recipient is Helmut E. Schrank. Active in MTT-S a decade ago, he has left a residue of respect and affection that persists until today. Hal was a member of AdCom from 1976 to 1978. During that time he was in charge of Institutional Listings in the Transactions, in those days a significant source of income for the Society. He was also active in the Standards area, serving as Chairman of the Waveguide Committee (1977–1979), and later (1980–1981) as Chairman of the Standards Coordinating Committee. Some of MTT's most significant impact results from its work on standards, work carried out by many individuals who often receive scant recognition for their contributions.



Helmut E. Schrank (M'48-SM'56-LS'89) was born in Berlin, Germany in 1922 and came to the United States in 1929. He received the M.E. and M.S.E.E. degrees from Stevens Institute of Technology, Hoboken, NJ, in 1943 and 1950, respectively.

From 1943 to 1948 he was employed at the Bell Telephone Laboratories, Whippany, NJ where he began his career in the field of microwave antennas. From 1948 to 1954 Hal was a Research Scientist at Johns Hopkins University

Radiation Laboratory, Baltimore, MD, and in 1954 he joined the Bendix Radio Division in Towson, MD, as a Principal Engineer. He was with Westinghouse Electric Corp. in Baltimore from 1957 until his recent retirement in 1989, where he was an Advisory Engineer in various Antenna Development departments.

He has been a Lecturing Consultant for Technology Service Corp., Silver Spring, MD, since 1974, and still teaches short courses on antenna subjects, around the United States and overseas. He has been an active member of the both the Antennas & Propagation Society (1991 President) and the Microwave Theory and Techniques Society since their beginning, and served on both AdComs. He was one of the founders of the Baltimore AP/MTT Chapter and served as its first Chairman (1955-1956).

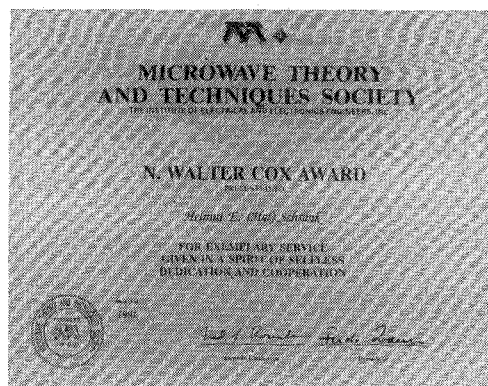
Mr. Schrank is a Registered Professional Engineer and a member of Gideons International and of Tau Beta Pi. He continues to work in the microwave field as the Antenna Series Book Editor for Artech House, Inc., Norwood, MA.

New IEEE Fellows

Twenty-three MTT-S members were elected to the grade of Fellow effective January 1, 1991. Of these, 12 were evaluated by the MTT-S and 11 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. This grade is not conferred automatically on nomination; only a fraction of those nominated are honored by elevation to Fellow. Of the present 4365 IEEE Fellows, 386 are MTT members.

Nine recipients chose to have their Fellow certificates presented at the 1991 International Microwave Symposium. Dr. Kiyo Tomiyasu, himself an IEEE Fellow, and member of the Institutes Fellow Committee, presented the awards at the Plenary Session of the Symposium.



Gailon E. Brehn

"For contributions to microwave circuit and semiconductor processing of GaAs monolithic microwave integrated circuits."

Kai Chang

"For contributions to microwave and millimeter-wave circuits and power combining techniques."

Eliot D. Cohen

"For leadership in the advancement of microwave and millimeter-wave monolithic integrated circuits."

Paul F. Goldsmith

"For the development of quasi-optical techniques and their application to low-noise radiometers and millimeter systems."

Wolfgang J. R. Hofer

"For contributions to the modeling and design of passive microwave and millimeter-wave circuits."

James W. Mink

"For contributions to quasi-optical millimeter-wave power-combining techniques for solid-state sources."

Allen F. Podell

"For contributions to hybrid and gallium arsenide monolithic microwave integrated circuits."

Robert J. Trew

"For contributions to the development of physical models and computeraided design tools for microwave solid-state devices and circuits."

Kawthar A. Zaki

"For contributions to the analysis dielectric waveguides and resonators and their applications in microwave filters and oscillators design."