1991 Microwave Career Award

Sogo Okamura

"For a career of meritorious achievement and outstanding technical contributions in the field of microwave theory and techniques".

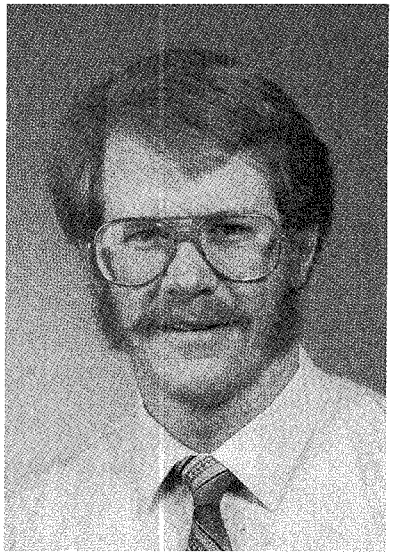
The *Microwave Career Award* is the highest award given by the Microwave Theory and Techniques Society. The eligibility requirements are publications in technical journals, presentations of lectures, and an a distinguished record of achievement over an entire career. The award consists of a certificate, a plaque, a cash sum of two thousand dollars, and a feature publication in the *IEEE Transactions on Microwave Theory and Techniques.*

Sogo Okamura (A'52, M'57, F'73, LF'86) has made important contributions to microwave technology and its development in Japan as a distinguished researcher and teacher. He studied electrical engineering at The University of Tokyo and received the Bachelor of Engineering Degree (1940) and later the Doctor of Engineering Degree (1951). He became a lecturer there in 1940, but enlisted in the Navy where he engaged in research and development of S-band radar at the Naval Research Institute until the end of World War II. He then returned to the University first as associate professor (1947) and later, professor (1951). On reaching emeritus status in 1978 he became Professor at Tokyo Denki University and now serves as its President.

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 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 has also made important contributions in high sensitivity detection, electron tubes, and microwave solid state devices.

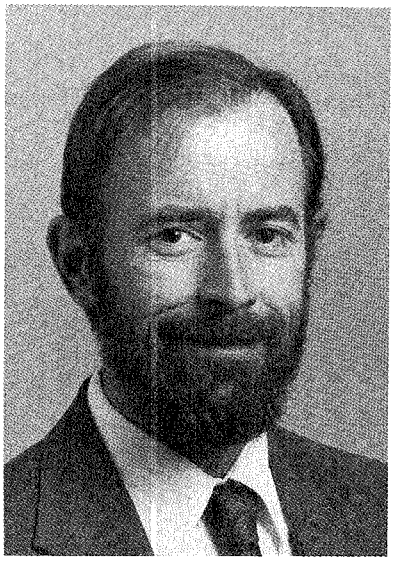
Professor Okamura has been an important force in the development of microwaves in Japan. While at the University he also served as Head of the Millimetric Wave Section in the Radio Research Laboratories, Ministry in Post and Telecommunications.

During his prolific career Prof. Okamura has published 37 articles and nine books and book chapters. He is a Fellow of the IEEE, the IEE (UK), and has received numerous honors in Japan and elsewhere. He was President of both the Institute of Electrical Engineers of Japan and the Institute of Electronics and Communication Engineers of Japan.



1991 Microwave Application Award

Eric W. Strid and K. Reed Gleason



"For the development of microprobe technology, its application to on-wafer test of microwave semiconductor devices, and for innovative microwave measurement techniques."

The *Microwave Application Award* is presented periodically for an outstanding application of microwave theory and techniques. The eligibility requirements are the creation of a new device, component or technique, novel use of components, or both. The award consists of a certificate, a cash sum of one thousand dollars, and a feature publication in the *IEEE Transactions of Microwave Techniques.*

Eric W. Strid (S'75, M'76) is the President of Cascade Microtech, Beaverton, OR. He received the BSEE degree from the Massachusetts Institute of Technology (1974) and the MSEE from the University of California at Berkeley (1975). He worked for Page Communications-Alaska on the Alaska Pipeline. From 1976 to 1979 he developed low-noise and high-power solid-state microwave amplifiers at Farinon Electric, San Carlos, CA. 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 was acting Design Manager at Triquint Semiconductor, Inc in Beaverton, and in 1985 he co-founded Cascade Microtech. Mr. Strid has published more than thirty five technical papers and has authored eight patents. He was honored with the 1987 ARFTG Automated Measurements Award.

K. Reed Gleason (M) is VP of Advanced Development and co-founder of Cascade Microtech. He received the BSEE degree from the California Institute of Technology (1967). He joined the U.S. Naval Research Laboratory, Washington, D.C., where he worked on the development and analysis of GaAs detector and mixer diodes, Si TRAPATT diodes, and GaAs and InP FETs. There he developed a microwave wafer probe for measuring tangential sensitivity of diodes at 3 GHz. In 1978 Mr. Gleason joined Tektronix where he, too, worked on GaAs ICs. He has written over fifteen technical papers and holds more than seven patents.

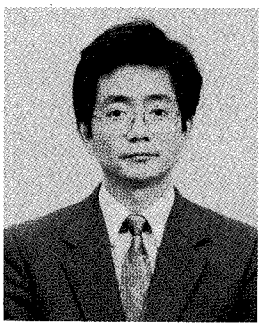
1991 Microwave Prize

Tsuneo Tokumitsu, Shinji Hara, and Dr. Masayoshi Aikawa

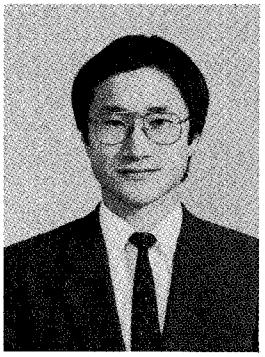
The *Microwave Prize* is Awarded annually to the author(s) of that paper, published in the *IEEE Transactions on Microwave Theory and Techniques, Proceeding of the IEEE*, or other official IEEE publication, which is judged to be the most significant contribution in the field of interest of the Society in the calender year preceding that in which the selection is made. The award comprises a certificate and the cash sum of one thousand dollars.

The 1991 Microwave Prize is 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," published in the *IEEE Transactions on Microwave Theory and Techniques*, vol. 37, pp. 1985-1990, December 1989.

Tsuneo Tokumitsu (M'80), was born in Hiroshima, Japan, in 1952. He received the B.S (1974) and M.S. (1976) degrees in electronics engineering from Hiroshima University. He joined NTT in 1976 where he worked on microwave and millimeter-wave GaAs FET circuits and MMICs including low noise, high power, wide-band amplifiers, and frequency convertors for space applications. In 1986 he joined ATR Optical and Radio Communications Research Laboratories, Osaka, as senior researcher, on leave from NTT. At ATR his main interests were in achieving FET-sized, wide band circuit function modules, multilayer passive MMICs, active inductors, and also their applications to highly integrated MMICs for RF signal processing. In 1990 he returned to NTT at the Radio Communication Systems Laboratories, Kanagawa, Japan, as a Senior Research Engineer. He has been engaged in the development of monolithic,high linearity TR modules for digital trunk transmission systems, and in research on RF signal Processing MMICs.



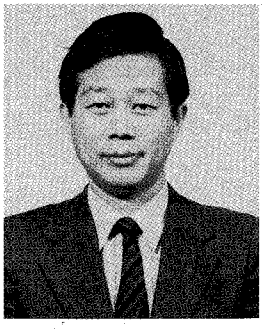
Mr. Tokumitsu is a member of the Institute of Electronics, Information and Communications Engineers of Japan.



Shinji Hara (M'88) was born in Toyama, Japan, in 1960. He received the B.E. (1982) and the M.E. (1984) degrees in electronics engineering from Waseda University, Tokyo. After graduation he joined the Tokyo Research Laboratories of Sharp Corporation. From 1986 to 1989 he was a researcher at ATR Optical and Radio Communications Laboratories, Osaka, 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 MMICs. He is now with Central Research Laboratories, Sharp Corporation, Nara, Japan, where he is currently involved in work 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, in 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.

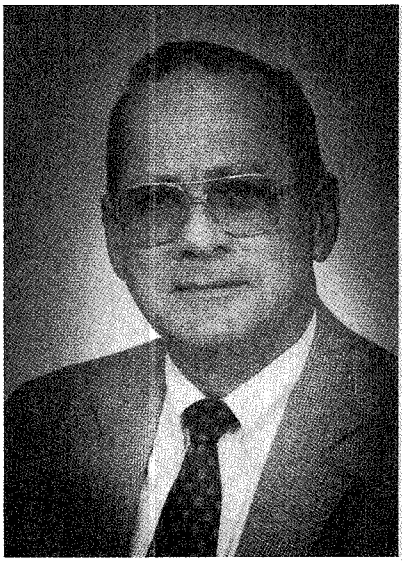


In 1971 he joined NTT in Tokyo, where he did research and development on MICs , MMICs , and equipment for microwave radio. In 1986, on leave from NTT, he joined ATR Optical and Radio Communications Research Laboratories, in Osaka, where he was engaged in basic research on highly integrated MMICs and RF signal processing for future mobile communications. He is now with the NTT Radio Communication Systems Laboratories, Yokosuka, where he is working on MMICs 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.

1991
Distinguished Service Award

Charles T. Rucker



"For his outstanding and dedicated service to the Society."

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. The award comprises a certificate and a plaque.

This year's honoree is **Charles T. Rucker** (S'56, M'69, SM'78, F'82), Associate Director of the Georgia Institute of Technology Microelectronics Research Center, Atlanta Georgia.

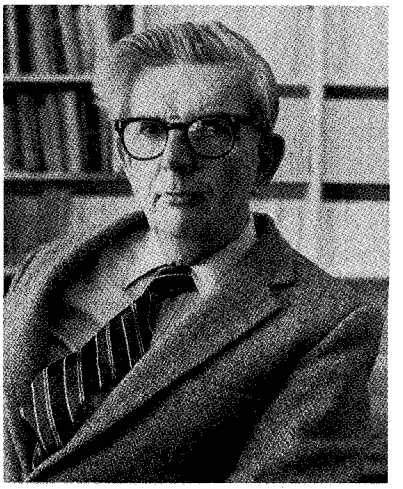
Charlie Rucker's productive career within MTT-S includes: Administrative Committee Member (1976-1986), MTT-S Secretary (1976), MTT-S Vice President (1982), and MTT-S President (1983). He has continued to serve AdCom as Awards Chairman (1986-1988) and as a valued member of the Past Presidents Council. He is co-chairman of the 1993 International Microwave Symposium, to be held in Atlanta.

After a tour of duty in the US Navy, Charlie Rucker attended Georgia Tech, and received the BEE degree in 1957. He worked at Sperry Microwave Electronics, in Clearwater FL (1957-1971), and later, at the Sperry Electronic Tube Division in Gainesville (1971-1973).

In 1973 he joined the Engineering Experiment Station at Georgia Institute of Technology. Since 1957 he has participated in the growth of the microwave semiconductor field from a time when radars used a single semiconductor diode to the present where complex radar components are realized directly on a GaAs chip. He is an expert in the field of microwave power combiners and has performed advanced research in this area for industrial firms and government agencies. He has written some thirty major reports and publications in the microwave field and holds two patents.

Mr. Rucker is a Fellow of the IEEE and is an IEEE Centennial Medalist.

1991 Pioneer Award



Robert H. Dicke

"For the invention of the microwave radiometer."

This award recognizes important technical contributions that have had a continuing impact on the practice of microwave engineering for a period exceeding twenty years. The award consists of a certificate, a bronze plaque, and a cash sum of one thousand dollars.

The 1991 recipient is **Robert H. Dicke,** Albert Einstein Professor of Science, Professor of Physics Emeritus, Princeton University. Prof. 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 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 carried out at the MIT Radiation Laboratory.

Robert H. Dicke, born in 1916, was raised in Rochester N.Y. He received the AB degree from Princeton University (1939) and the Ph.D in physics from the University of Rochester (1941). In September 1941 Dicke joined the Radiation Laboratory at MIT, where he worked on silicon detectors, antenna feed patterns, the theory of symmetric waveguide 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 Dicke stayed on to help write the Radiation Laboratory Series, principally Vol. 8 which contains his theory of symmetric waveguide junctions.

In 1946 he joined the Physics Department at Princeton 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 was department chairman from 1967 to 1970. He retired in 1984, but continues his research as the Albert Einstein Professor of Science Emeritus.

He has served on numerous advisory committees, including the National Science Board, the National Bureau of Standards, and NASA. He is a member of the National Academy of Sciences, and has received many high honors during his career including the National Science Medal (1971) and three honorary D.Sc. degrees.

1991 N. Walter Cox Service Award

Helmut E. Schrank

"For exemplary service given in a spirit of selfless dedication and cooperation."

The *N. Walter Cox Award* recognizes an individual for his contributions to MTT-S and for the manner in which they have been provided. The Award has been established to perpetuate the memory of N. Walter Cox who worked generously and modestly for the benefit of the Society. The Award is given aperiodically to a Society volunteer whose efforts on behalf of MTT-S best exemplify the spirit and dedication of Walter Cox.

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 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 (1980-81) as Chairman of the Standards Coordinating Committee.

Helmut E. Schrank (M '48, SM '56, LSM '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, N.J. in 1943 and 1950, respectively.

From 1943 to 1948 he was employed at Bell Telephone Laboratories, Whippany, N.J. where he began his career in the field of microwave antennas. From 1948 to 1954 Hal was a Research Scientist at the Johns Hopkins University Radiation Lab in Baltimore, MD, and in 1954 he joined Bendix Radio as a Principal Engineer. Since 1957 he has been with Westinghouse Electric Corp. in Baltimore, where he was an Advisory Engineer in various Antenna Development departments until his recent retirement in 1989.

Hal has been a lecturing consultant for Technology Service Corp., Silver Spring, MD since 1974, and still teaches short courses on antenna subjects, around the USA and overseas. He has been an active member of the IEEE Antennas & Propagation Society 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 (1955-56). He is President of AP-S for 1991.

Mr. Schrank is a Registered Professional Engineer in the state of Maryland, a member of Tau Beta Pi, and a member of Gideons International. He is also Antenna Series Book Editor for Artech House, Inc. in Norwood, MA.

1991 IEEE Fellow Awards

Twenty-three members of the Microwave Theory and Techniques Society were elected Fellow, IEEE. Of these, twelve were evaluated by MTT-S. The names and citations for these twelve are listed below.

Dr. Gailon E. Brehm
Texas Instruments

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

Professor Kai Chang
Dept. of Electrical Engineering
Texas A & M. University

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

Mr. Eliot D. Cohen
DOD

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

Professor Paul F. Goldsmith
Dept. of Physics & Astronomy
University of Massachusetts

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

Dr. Tsutomu Hashimoto
Mitsubishi Electric Corp.

For contributions to and leadership in the development of microwave transmission lines and circuits for practical satellite communication antennas.

Dr. Peter R. Herczfeld
Drexel University

For contributions to the application of lightwave technology to microwave and millimeter-wave devices, circuits, and systems.

Professor Wolfgang J. R. Hoefer
Dept. of Electrical Engineering
The University of Ottawa

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

Dean Erik L. Kollberg
Dept. of Applied Elect. Physics
Chalmers Univ. of Technology

For leadership in and contributions to the advancement of low-noise microwave and millimeter-wave receivers.

Dr. James W. Mink
Electronic Division
U.S. Army Research Office

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

Mr. Allen F. Podell
Pacific Monolithics, Inc.

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

Professor Robert J. Trew
Elect. & Comp. Eng. Dept.
North Carolina State Univ.

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

Professor Kawthar A. Zaki
Elect. Eng. Dept.
University of Maryland

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

1991 IEEE Fellow Awards

The names and citations for those members who were evaluated by another society are given here.

Dr. J. Douglas Adam

For contributions to the development of microwave device applications of ferrite thin films.

Dr. Corrado P. Dragone

For contributions to the theory, design, and application of microwave reflector antennas.

Professor Chi Hsiang Lee
Dept. of Electrical Engineering
University of Maryland

For research contributions in the picosecond photoconductivity effect and its application to picosecond optoelectronics and microwave/millimeter-wave technology.

Mr. Stephen E. Lipsky

For contributions to the art of microwave passive direction-finding systems.

Professor Stuart A. Long
Dept. of Electrical Engineering
University of Houston

For contributions to the development of microstrip and dielectric resonator antennas.

Professor Robert H. MacPhie
Elect. & Comp. Eng. Dept.
University of Waterloo

For contributions to the theory of signal processing antenna systems, dipole antennas, and electromagnetic scattering by prolate spheroids.

Dr. L. Wilson Pearson
Elect. Eng. Dept.
Clemson University

For contributions to combined numerical and analytical methods in electromagnetic scattering and diffraction.

Mr. Edwin W. Richter

For contributions to the design and development of RF and microwave instrumentation and for the design of computer-controlled microwave automatic test subsystems.

Dr. John K. Schindler
Electromagnetics Directorate
RADC/EE

For leadership in the development of effective programs in radar signal processing and antenna technology.

Dr. Stanislaw S. Stuchly
Dept. of Elect. Eng.
University of Ottawa

For contributions to electromagnetic measurements and instrumentation.

Dr. Rolf Unbehauen

For contributions and leadership in the field of analog and digital filter design and signal processing.