1996 MTT-S Awards

David N. McQuiddy, Jr., *Fellow, IEEE*

THE ANNUAL MTT-S Awards were presented by our President John Wassel in the Plenary Session and at the Awards Banquet during the 1996 International Microwave Symposium in San Francisco. The Awards Committee, the Fellows Evaluation Sub-Committee, and the Microwave Prize Sub-Committee have carefully evaluated an extensive list of outstanding candidates from the nominations solicited from our members over the last year. The Awards Committee is to be commended for their objective selection of this year's awardees.

The nomination processes for the MTT-S Awards and the IEEE Fellows are publicized in the *MTT-S Newsletter*, and nominations can be made by any member to recognize deserving individuals for the various awards. The selection process for the MTT-S Awards started after the nomination deadline of 1 July 1995, and the results of the selection process were first announced in the Fall AdCom meeting which was held in September 1995. The nominations for the IEEE Fellows were due 15 March 1995, and the results were announced by IEEE Headquarters on 1 December 1995. A listing of the 1996 Awards including the 1996 IEEE MTT-S Fellows was published in the official program of the 1996 International Microwave Symposium and in the *1996 International Microwave Symposium Digest*.

In addition to the MTT-S Awards and Fellows, the Awards Committee and the President in consultation with AdCom Committees recognize the achievements of those key individuals who have given extraordinary service to our microwave profession by presenting them with Certificates of Recognition. These awards were announced during Microwave Week and were presented in the Plenary Session of the symposium.

Our MTT-S Honorary Life Member, Theodore S. Saad, presented the nine MTT-S Fellows Awards at the Awards Banquet. The MTT-S Awards were presented by President John Wassel. In a special recognition, Ted Saad was given a standing ovation in advance of receiving the Richard M. Emberson Award, an IEEE Service Award. Ted received this award later in the week at the IEEE Technical Activities Board Honors Ceremony in Montreal, Quebec, Canada, on 22 June 1996. The Richard M. Emberson Award is for distinguished service to the development, viability, advancement, and pursuit of the technical objectives of the IEEE.

The Awards Banquet was concluded with the presentation of the IEEE Frederik Phillips Award by 1995 IEEE President James T. Cain to Michiyuki Uenohara. The Frederik Phillips is an IEEE Technical Field Award for recognizing outstanding accomplishments in the management of R&D resulting in effective innovation and is awarded to an individual or team of not more than three people. Dr. Uenohara had received the MTT-S Pioneer Award for his pioneering contributions to the development of low noise microwave parametric amplifiers at the International Microwave Symposium in Orlando, Florida, in May 1994.

Publisher Item Identifier S 0018-9480(96)08578-X.

I. Awards Summary

A. Technical Awards

Career Award: Dr. John H. Bryant

"FOR LEADERSHIP IN THE MINIATURIZATION OF MICROWAVE CIRCUITS AND INTERCONNECTIONS, AND FOR PIONEER HISTORICAL RESEARCH ON RADAR AND THE WORK OF HEINRICH HERTZ."

Plaque, Certificate, Honorium for $2,000

Pioneer Award: Dr. Kaneyuki Kurowara

"FOR PIONEERING DEVELOPMENTS ON THE GENERAL THEORY OF MICROWAVE SOLID-STATE OSCILLATORS."

Plaque, Honorarium of $2,000

Application Award: Dr. Kikuo Wakino

"FOR PIONEERING THE DEVELOPMENT OF LOW-LOSS, TEMPERATURE-STABLE, CERAMIC DIELECTRIC RESONATORS."

Plaque, Certificate, Honorarium for $1,000

Distinguished Educator Award: Dr. George I. Haddad

"FOR LEADERSHIP IN TEACHING, RESEARCH, AND IN THE MICROWAVE PROFESSION."

Plaque, Honorarium of $1,000

Microwave Prize: Mr. Heng-Ju Cheng, Dr. John F. Whitaker, Dr. Thomas M. Weller, and Dr. Linda P. B. Katehi for their paper: "Terahertz-Bandwidth Characteristics of Coplanar Lines on Low-Permittivity Substrates," IEEE TRANSACTIONS ON MICROWAVE THEORY AND TECHNIQUES: vol. 42, no. 12, December 1994, pp. 2399–2406.

Certificate, Honorarium of $500 each.

B. Fellow Awards

Dr. Adalbert Beyer,
Dr. Radoslaw M. Bernacki,
Dr. Chun-Hsiung Chen,
Dr. E. James Crescenzi, Jr.,
Dr. John M. Golio,
Dr. Victor Fouad Hanna,
Dr. Andrej W. Kraszewski,
Dr. Paolo Lampariello, and
Dr. Christopher M. Snowden.

C. Service Awards

Distinguished Service Award: Dr. Rudolf E. Henning

"FOR DISTINGUISHED SERVICE TO THE PROFESSION, THE IEEE, AND THE MICROWAVE THEORY AND

TECHNIQUES SOCIETY."

Plaque, Certificate

Newsletter Editor: Mr. John W. Wassel

"IN RECOGNITION OF DISTINGUISHED SERVICE AS 1991–1995 EDITOR OF THE IEEE MTT-S NEWSLETTER."

Plaque

Past President: Mr. Eliot D. Cohen

"IN RECOGNITION OF DISTINGUISHED SERVICE AS 1995 PRESIDENT."

Plaque

Distinguished Lecturer (1994–1996): Dr. Martin V. Schneider

Title of Lecture:

"WIRELESS COMMUNICATIONS."

Plaque.

D. Certificates of Recognition

Mr. Robert W. Bierig, Secretary of AdCom 1995.

Mr. Derry P. Hornbuckle, Member of AdCom 1993–1995.

Dr. Gene Keith Huddleston, *Co-Chairman*, 1995 International Microwave Symposium.

Dr. Rudolf E. Henning, *Co-Chairman*, 1995 International Microwave Symposium.

Dr. C. Larry Brockman, *Co-Chairman Technical Program Committee*, 1995 International Microwave Symposium.

Mr. Terry Duffield, *Co-Chairman Technical Program Committee*, 1995 International Microwave Symposium.

Mr. Daniel S. Dunn, *Co-Chairman Local Arrangements*, 1995 International Microwave Symposium.

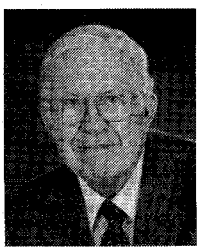
Mrs. Laurie Dunn, *Co-Chairman Local Arrangements*, 1995 International Microwave Symposium.

Mr. Eric Strid, *General Chairman*, 1995 Microwave and Millimeter-Wave Monolithics Circuits Symposium.

II. Microwave Career Award

The Microwave Career Award is the highest honor bestowed by MTT-S. It recognizes an individual for a lifetime career of meritorious service and technical excellence in the field. In 1996, our honored recipient is Dr. John H. Bryant, a former President of MTT-S and an IEEE Fellow.

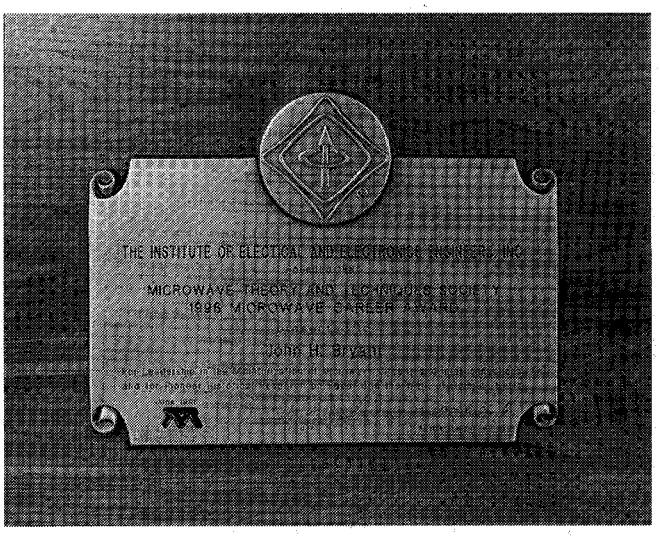
The Career Award Citation reads: "For Leadership in the Miniaturization of Microwave Circuits and Interconnections, and for Pioneer Historical Research on Radar and the Work of Heinrich Hertz."

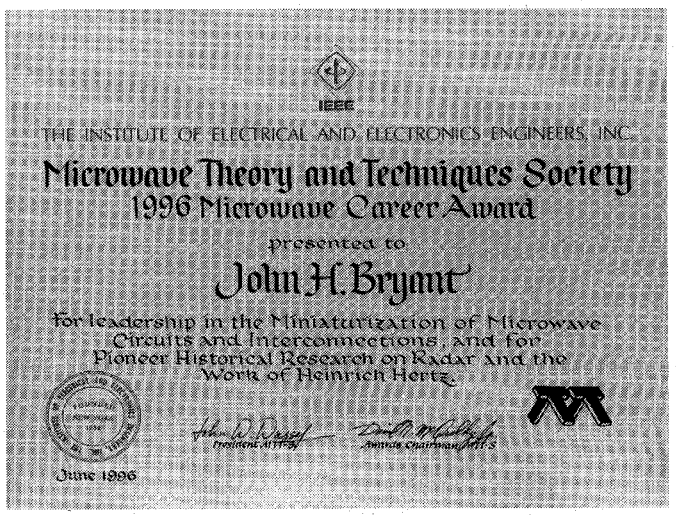


John H. Bryant (M'50–SM'52–F'67) received the B.S.E.E. degree from Texas A&M University, College Station, in 1942. Following active duty in the U.S. Army Signal Corps in England and Europe and extensive experience with British and American operational radar, he received the M.S. and Ph.D. degrees in 1947 and 1949 from the University of Illinois, Urbana, IL.

At IT&T Laboratories (1949 to 1955) Dr. Bryant was developing traveling-wave amplifier tubes with applications in broadband electronic countermeasures equipment. The available coaxial type N circuit connectors made it impossible to get broadband, compact, and reflectionless performance. At the Bendix Research Laboratories Division (1955 to 1962) he organized efforts that resulted in the enabling technology for the first microwave miniaturization connectors. Dr. Bryant and two colleagues, James Cheal and Vincent J. McHenry, who had been largely responsible for this miniaturization, believed it held the potential for an entirely new approach to microwave construction for broadband, compact assemblies to use in missiles and spacecraft, as well as for replacement of waveguide and bulky coax in conventional applications at all microwave frequencies. They founded Omni Spectra, Inc. in 1962, to manufacture the miniature connectors to military and NASA requirements. The reduced cross section extended the upper usable frequency to at least the top of K-band (through 26 GHz) and also made practical use of microstrip transmission line circuits. The much smaller circuit elements, which came with the miniaturization, and the geometry of microstrip were compatible with use of new semiconductor diodes and transistors then becoming available. This fostered the trend to microwave integrated circuits. A complete line of miniature, very low reflection coaxial connectors in categories of circuit connections, interconnections, and cable fittings was produced complete enough to allow a wide variety of components, devices, and systems to be developed. OSM, for Omni Spectra Miniature, was adopted as a trademark. Other manufacturers came in gradually, beginning in 1964. They largely conformed to the OSM interface and design—an example of voluntary cooperation which led in 1968 to a standard under MIL-C-39 012 as the type SMA connector.

Dr. Bryant served on MTT-S AdCom from 1965 to 1970 and was President in 1970. He also served as Chairman of the Southeastern Michigan Section in 1970. He was MTT-S Distinguished Microwave Lecturer in 1986 to 1987 on the topic, "The First Century of Microwaves, 1876–1976." He headed the MTT-S Heinrich Hertz centennial celebration in 1988, produced an exhibit, a book titled *Heinrich Hertz: The Beginning of Microwaves*, and organized a special session of papers at the 1988 Symposium. He has been extensively engaged in documenting and writing on history of electromagnetics and microwaves, and more recently has been concentrating on history of radar including oral history interviews.

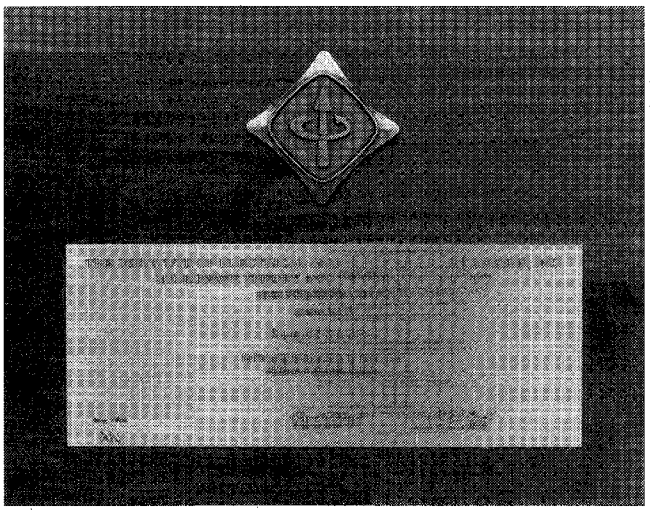


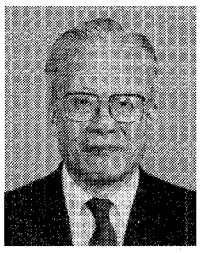


III. Pioneer Award

The Pioneer Award recognizes contributions that have had a major impact on the 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. This award recognizes important technical contributions that have had a continuing impact on the practice of microwave engineering over the last several decades.

The recipient this year is Dr. Kaneyuki Kurokawa, a Life Fellow of IEEE. Dr. Kurokawa is well known for his many developments in microwave and optical components while working for Bell Laboratories and Fujitsu. He has been a Fujitsu Fellow since 1994. His citation reads: "For Pioneering Developments on the General Theory of Microwave Solid-State Oscillators."





Kaneyuki Kurokawa (M'60–SM'73–F'74–LF–95) was born on August 14, 1928 in Tokyo. He received the B.S. degree in electrical engineering in 1951 and the Ph.D. degree in 1958, both from the University of Tokyo, Japan. He developed the complete mode theory of microwave resonant cavities and derived for the first time their correct admittance. In 1957, he became Assistant Professor at the University of Tokyo. From 1959 to 1961, he worked on parametric amplifiers at Bell Laboratories, Murray Hill, NJ, on leave of absence from the university.

In 1963, he joined Bell Laboratories as a Member of Technical Staff and was later promoted to a Supervisor. At Bell, he developed microwave balanced transistor amplifiers, millimeter-wave path length modulators, and the theory of microwave solid state oscillators and initiated the development of optical fiber transmission systems. In his power wave paper, he presented the scattering parameter expressions of the stability factor K, the maximum transducer gain, and the condition for input and output simultaneous matching of two port networks. These S-parameter expressions became standard textbook material. His other contributions include the extension of the variational principle to the propagation constant of waveguides with lossy walls, the actual noise measure, the quality factor of digital switching diodes, and the dynamics of high-field domains in bulk semiconductors. In 1975, after the delivery of a half-dozen optical transmitter and receiver modules from Murray Hill to Holmdel for the Atlanta Experiment, Dr. Kurokawa left Bell to join Fujitsu. At Fujitsu, he directed the efforts to develop optical fiber systems, array and simulation processors, Josephson junction IC's, and the silicon on insulator technology. From 1985 to 1989, he was in charge of Fujitsu's Atsugi Laboratories, where HEMT devices and distributed feedback lasers were successfully developed. During this period, in addition to his managerial duties, he personally clarified the head crash mechanism of hard-disks, which had plagued the hard-disk industry for almost a decade. He is the author of *An Introduction to the Theory of Microwave Circuits* (New York: Academic, 1969).

Dr. Kurokawa became Director of Fujitsu Laboratories in 1979, Managing Director in 1985, and Vice President in 1992. He has been Fujitsu Fellow since 1994. From 1986 to 1989, he also served as a Visiting Professor at the Institute of Industrial Science of the University of Tokyo. He is an IEEE Life Fellow and a member of the Association of Computing Machinery and the Institute of Electronics, Information and Communication Engineers. He received the Certificate of Appreciation from the International Solid-State Circuits Conference in 1965.

IV. 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 creation of a new device, component or technique, or a novel use of components, or both.

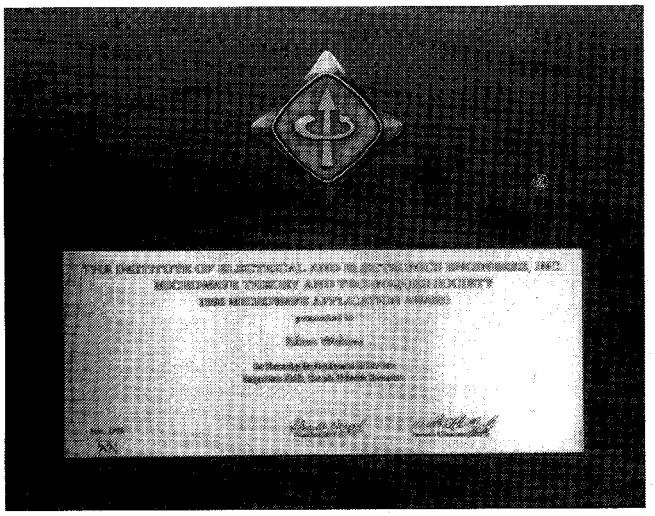
Dr. Kikuo Wakino, the 1996 recipient, was responsible for the development of low-loss, temperature-stable, dielectric resonators at Murata Manufacturing Company. Dr. Wakino is an IEEE Fellow. His award citation reads: "For Pioneering the Development of Low-Loss, Temperature-Stable, Ceramic Dielectric Resonators."

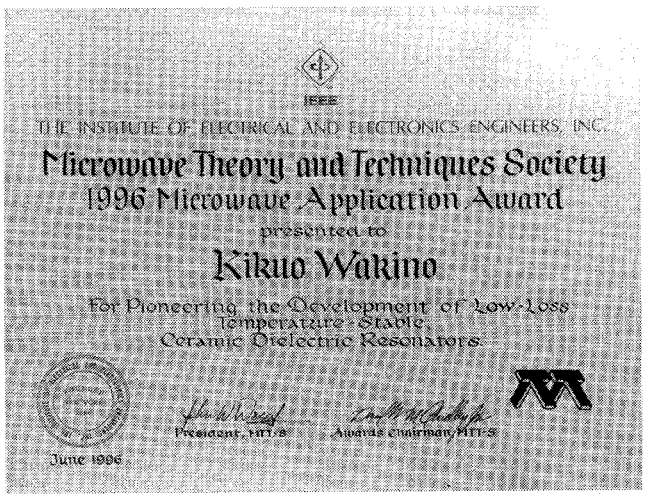
Kikuo Wakino (M'72–SM'89–F'92) was born on August 30, 1925, in Kyoto, Japan. He received the B.S. degree in physics and doctor of engineering in electrical engineering, both from Osaka University in 1950 and 1980, respectively.

He joined Murata Manufacturing Co. Ltd. in 1952 and engaged in the research and development of dielectric materials for ceramic capacitor. By the end of 1952, he had established techniques for producing temperature compensated, high K ceramic capacitors. In 1955, Dr. Wakino started research and development work on the lead zirconate titanate (PZT) ceramics group for application to piezoelectric devices, such as ceramic IF filters, piezoelectric transducers, etc. In 1960, he established a mass production line for PZT ceramics. He started research and development work on dielectric ceramics for microwave application in 1971 and succeeded in demonstrating ultra low loss, temperature-stable dielectric ceramics and dielectric resonators in 1973. He organized and conducted an R&D working group for dielectric resonators and microwave filters in 1973. Dr. Wakino and his colleagues developed a miniaturized 4.5 GHz bandpass filter using the ring type $TE_{01\delta}$ mode resonator (the first practical microwave filter using temperature stable dielectric resonators) and reported this work at the MTT-S Symposium in Palo

Alto in 1975. In 1978, the local oscillator for a satellite broadcast receiver was developed by his group and was produced for this class of applications. He lead a developmental project for a miniaturized filter using the coaxial type (TEM mode) dielectric resonator for 800 MHz band mobile telephone system in 1981. The development was extended to the monoblock type diplexer for portable telephone terminals in 1982. These filters have been designed and manufactured for most of the cellular mobile telephone systems such as AMPS, NTT, and E-TACS. Filter circuit volume for these applications has been reduced from 270 cm^3 in 1978 to 0.7 cm^3 in 1994. He also conducted an extended program to develop high power filters for cellular base stations. Using low loss and linear $(Zr, Sn)TiO_4$ resonators, his group eliminated cross talk problems between neighboring channels and developed high power filters for cellular base stations. Several types of dielectric resonators and filters have been built and supplied as a key device in satellite transponders. He is the author and co-author of more than 30 papers in international journals and holds more than 20 patents. He has presented seven invited talks at the symposiums and workshops of MTT-S and the American Ceramic Society.

Dr. Wakino is a Fellow of IEEE and of the American Ceramic Society. He received Blue Ribbon Medal and Award Fellow of The Science and Technology Agency of Japanese Government both in 1988. He received Award of Technical Progress of Japanese Ceramic Society in 1978. He is also a member of American Physical Society, Physical Society of Japan, and American Ceramic Society. He is presently serving as Distinguished Microwave Lecturer for MTT-S.





V. Distinguished Educator Award

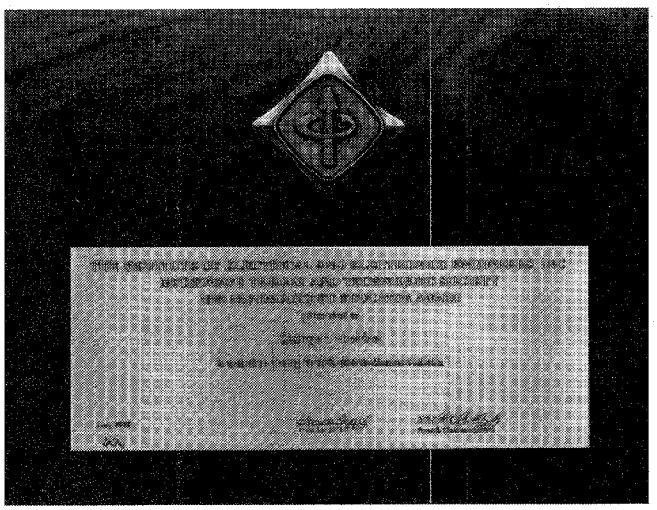
This Award was inspired by the untimely death of Prof. F. J. Rosenbaum (1937–1992), an outstanding teacher of microwave science and a dedicated MTT-S AdCom member/contributor. The award is given to a distinguished educator in the field of microwave engineering and science who exemplifies the special human qualities of the late Fred J. Rosenbaum. Fred considered teaching a high calling and demonstrated his dedication to MTT-S through tireless service. The awardee must be a distinguished educator, recognized in general, by an academic career coupled to many years of service to the microwave profession. The effectiveness of the educator should be supported by a list of graduates in the field of microwave science who have become recognized in the field. The candidate shall also have an outstanding record of research contributions documented in archival publications. The candidate shall also have a record of many years of service to MTT-S.

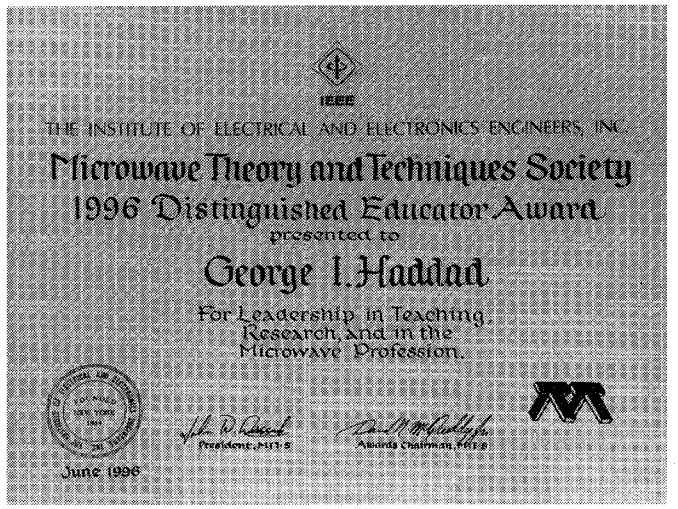
The recipient of this year's award is Dr. George I. Haddad of the University of Michigan. The citation reads: "For Leadership in Teaching, Research and in the Microwave Profession."

George I. Haddad (S'57–M'61–SM'66–F'72) received the B.S.E., M.S.E., and Ph.D. degrees in electrical engineering from The University of Michigan, Ann Arbor, MI.

In 1958 he joined the Electron Physics Laboratory, where he was engaged in research on masers, parametric amplifiers, detectors, and electron-beam devices. From 1960 to 1969 he served successively as Instructor, Assistant Professor, Associate Professor, and Professor in the Electrical Engineering Department. He served as Director of the Electron Physics Laboratory from 1968 to 1975. From 1975 to 1986 Dr. Haddad served as Chairman of the Department of Electrical Engineering and Computer Science. From 1987 to 1990 he was Director of both the Solid-State Electronics Laboratory and the Center for High-Frequency Microelectronics. He is currently the Robert J. Hiller Professor and Chairman of the Electrical Engineering and Computer Science Department and Director of the Center for High Frequency Microelectronics. His current research areas are microwave and millimeter-wave solid-state devices and monolithic integrated circuits, microwave-optical interactions and optoelectronic devices and integrated circuits. He has supervised more than 50 Ph.D. graduates, many of whom are presently leaders in the microwave community.

Dr. Haddad received the 1970 Curtis W. McGraw Research Award of the American Society for Engineering Education for outstanding achievements by an engineering teacher, The College of Engineering Excellence in Research Award (1985), The Distinguished Faculty Achievement Award (1986) of The University of Michigan, and the S.S. Attwood Award of the College of Engineering for Outstanding Contributions to Engineering Education, Research and Administration. He is a member of Eta Kappa Nu, Sigma Xi, Phi Kappa Phi, Tau Beta Pi, the American Society for Engineering Education, and the American Physical Society. He is a Fellow of the IEEE and a member of the National Academy of Engineering. He was a member of the steering committee and chairman of the technical program committee for the 1968 International Microwave Symposium. He was a member of the Administrative Committee from 1968 to 1976 and editor of the IEEE TRANSACTIONS ON MICROWAVE THEORY AND TECHNIQUES from 1968 to 1971. He received the MTT-S Distinguished Service Award in 1977.





VI. Microwave Prize

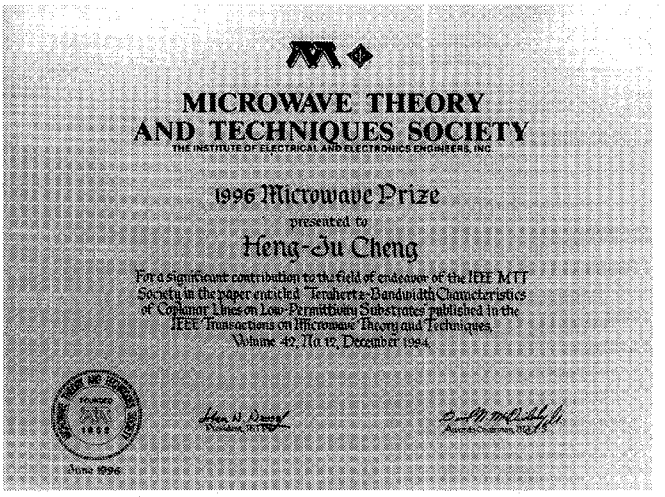
The Microwave Prize is awarded annually to the author or authors of a paper published in the IEEE TRANSACTIONS ON MICROWAVE THEORY AND TECHNIQUES, or any other IEEE publication, that is judged to be the most significant contribution in the field of interest to the Society in the calendar year preceding that in which the selection is made.

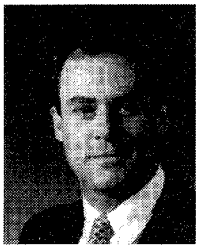
The 1996 Microwave Prize is awarded to Heng-Ju Cheng, John F. Whitaker, Thomas M. Weller, and Linda P. B. Katehi for their paper entitled "Terahertz-Bandwidth Characteristics of Coplanar Lines on Low-Permittivity Substrates," IEEE TRANSACTIONS ON MICROWAVE THEORY AND TECHNIQUES, vol. 42, no. 12, December 1994, pp. 2399–2406.

Heng-Ju Cheng (S'93–M'95) was born in Taiwan. He received the B.S. and M.S. degree from National Chiao-Tung University, Taiwan, and the Ph.D. degree in electrical engineering from the University of Michigan, Ann Arbor, MI, in 1985, 1987 and 1995, respectively.

On completion of military service in 1989, he joined the Industrial Technology Research Institute, Taiwan, where he designed the CCD (charge-couple device) sensors for imaging applications. From 1990 to 1995, he was a Research Assistant at the University of Michigan where he did research on the characterization of high-speed electronics in the mm-wave region by optically-based sampling techniques. Since 1995, he has been an Associate Scientist in Picometrix Inc. where he is involved in the design of high-speed photodetectors and wideband analog amplifiers for the fiber communication and the high-speed instrumentation.

Dr. Cheng is the recipient of the Technology Achievement Award from the Industrial Technology Research Institute, Taiwan, in 1990, and the Rackham Pre-Doctoral Fellow from the University of Michigan in 1994.

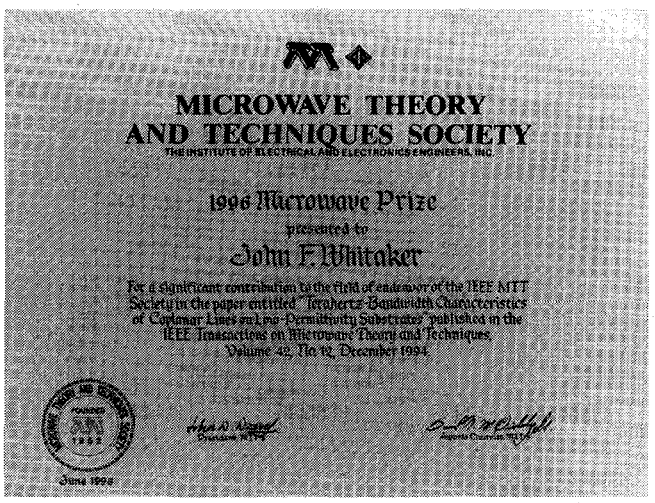




John F. Whitaker (S'84–M'88) was born in Penn Yan, NY, in 1959. He received the B.Sc. degree in physics from Bucknell University, Lewisburg, PA, in 1981, and the M.Sc. degree in 1983, and Ph.D. degree in 1988, both in electrical engineering from the University of Rochester, Rochester, NY.

As an undergraduate research fellow, and later as a Laboratory for Laser Energetics Graduate Student Fellow, he investigated novel means of generation, propagation, and measurement of picosecond electrical signals. His thesis was on the distortion mechanisms affecting ultrafast electrical signals on broadband, open-boundary transmission lines, including those utilizing low- and high-temperature-superconductors. Upon completion of his dissertation he continued his research under a Postdoctoral Fellowship at the Laboratory for Laser Energetics at the University of Rochester, working in picosecond optical electronics. In 1988 he accepted a faculty position as an Assistant Research Scientist within the Department of Electrical Engineering and Computer Science at the University of Michigan, Ann Arbor. In 1991 he became Coordinator of the Ultrafast Technology Area within the Center for Ultrafast Optical Science, when the research group with which he is affiliated was awarded this NSF Science and Technology Center. He continues in this role and as an Associate Research Scientist, and in 1995 he was named as a Visiting Associate Professor at the University of Savoie in France. Involved in ultrafast electronics and optics for 15 years, he has had extensive experience in the application of electro-optic sampling and other optically-based measurement techniques for the characterization of electronic materials and devices. His research activities while at Michigan have included the development and measurement of terahertz-bandwidth transmission lines, the application of electro-optic-sampling-based network analysis for high-speed electronic device testing, internal-node testing of integrated circuits, subpicosecond electrical characterization of nonstoichiometric (and particularly low-temperature-epitaxially-grown) semiconductors, and the generation of terahertz radiation bursts and their applications for spectroscopy. He is currently interested in applying terahertz optoelectronic techniques to the development of subpicosecond streak cameras. He has authored or co-authored more than 70 papers and two book chapters, and presented 12 invited talks at major conferences and symposia. He has graduated three Ph.D. students and supervised research activities for seven others, and he serves as a consultant to industry on various topics involving fast photoconductivity and guided pulse propagation.

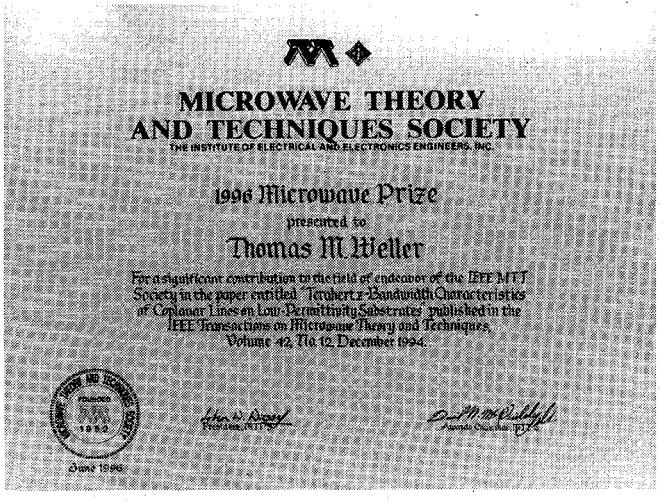
Dr. Whitaker is a member of the IEEE Lasers and Electro-Optics Society and the American Physical Society.



Dr. Thomas M. Weller (S'92–M'95) received the Ph.D. degree in electrical engineering from the University of Michigan, Ann Arbor, MI, in 1995. His graduate research focused on electromagnetic modeling of microwave circuits and planar antennas, and on the development of silicon-based micromachined components. His dissertation is entitled "Micromachined High Frequency Transmission Lines on Thin Dielectric Membranes."

He is an Assistant Professor in the Department of Electrical Engineering at the University of South Florida (USF), Tampa. His teaching responsibilities include courses on electromagnetics theory and microwave/mm-wave theory and techniques. His research interests lie in these same areas and extend to related uses of silicon micromachining. He is also very interested in engineering education. Prior to joining USF, he was a Research Assistant at the University of Michigan, 1990 to 1995, a Member of the Technical Staff at Hughes Aircraft Company, 1988 to 1990, and a Research Assistant at the Environmental Research Institute of Michigan, 1986 to 1988.

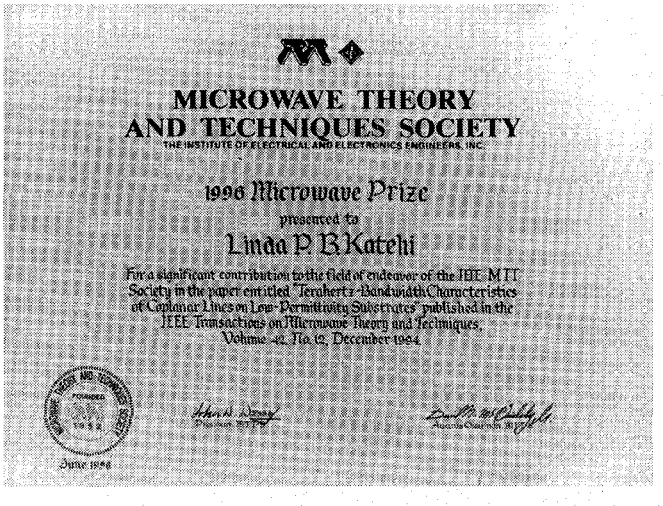
Dr. Weller served as the Vice-Chairman of the IEEE MTT/AP/ED Florida West Coast Chapter in 1996.



Linda P. B. Katehi (S'81–M'84–SM'89–F'95) received the B.S.E.E. degree from the National Technical University of Athens, Greece, in 1977 and the M.S.E.E. and Ph.D. degrees from the University of California, Los Angeles, in 1981 and 1984, respectively.

In September 1984 she joined the faculty of the EECS Department of the University of Michigan, Ann Arbor. Since then she has been interested in the development and characterization (theoretical and experimental) of microwave, millimeter printed circuits, the computer-aided design of VLSI interconnects, the development and characterization of micromachined circuits for millimeter-wave and submillimeter-wave applications and the development of low-loss lines for terahertz-frequency applications. She has also been studying theoretically and experimentally various types of uniplanar radiating structures for hybrid-monolithic and monolithic oscillator and mixer designs. She has graduated 11 Ph.D. students and is presently supervising 15 Ph.D. graduate students. She has been the author and co-author of more than 220 papers published in refereed journals and symposia proceedings.

Dr. Katehi has been awarded the IEEE AP-S W. P. King (Best Paper Award for a Young Engineer) in 1984, the IEEE AP-S S. A. Schelkunoff Award (Best Paper Award) in 1985, the NSF Presidential Young Investigator Award and an URSI Young Scientist Fellowship in 1987, and the Humboldt Research Award and The University of Michigan Faculty Recognition Award in 1994. She is a Fellow of IEEE, and a member of IEEE AP-S, MTT-S, Sigma Xi, Hybrid Microelectronics, URSI Commission D and a member of AP-S AdCom from 1992 to 1995. Also, she is an Associate Editor for the IEEE TRANSACTIONS ON ANTENNAS AND PROPAGATION and the IEEE TRANSACTIONS ON MICROWAVE THEORY AND TECHNIQUES.



VII. Distinguished Service Award

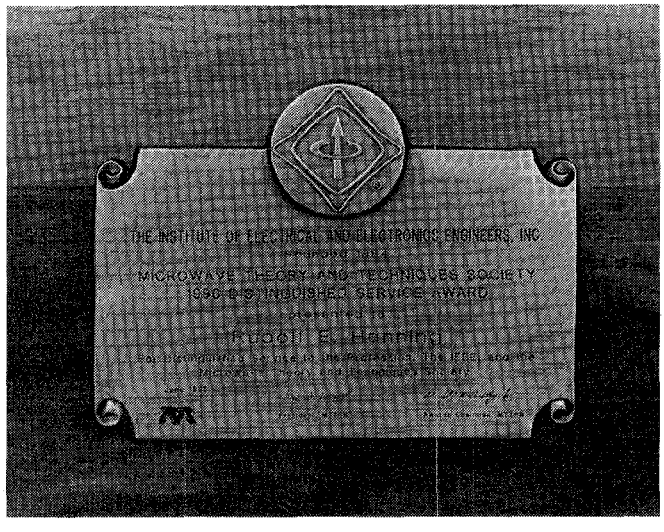
The Distinguished Service Award is presented to honor an individual who has given outstanding service over a period of years for the benefit and advancement of MTT-S. This year's honoree is Dr. Rudolf E. Henning who has served our Society for over 30 years. He has served as Chairman of MTT-S AdCom (the title is now President) and as Chairman or Co-Chairman of three National or International Microwave Symposia. He is an IEEE Life Fellow.

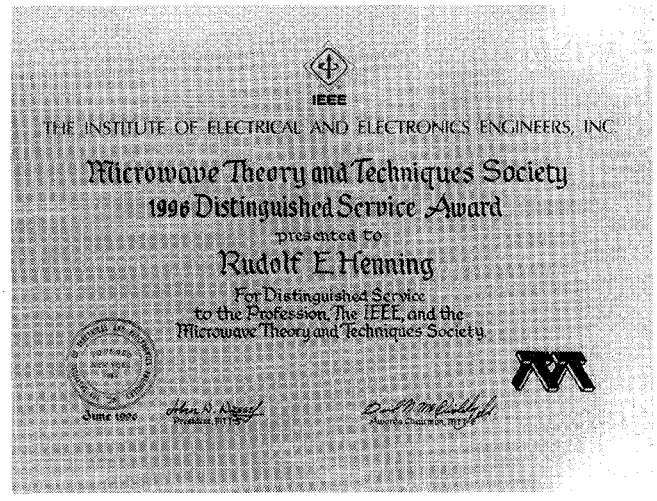
His Citation reads: "For Distinguished Service to the Profession, The IEEE, and the Microwave Theory and Techniques Society."

Rudolf E. Henning (M'48–SM'59–F'65–LF'89) was born in Hamburg, Germany, and received, the B.S.E.E., M.S.E.E., and D. Eng. Sc. degrees in 1943, 1947, and 1954, respectively, from Columbia University, New York, NY.

In 1944 and 1945 he served in the U.S. Army. For the last 25 years he has been with the University of South Florida (USF), Tampa, where he is currently a Distinguished Service Professor. Other positions there included Associate Dean and Department Chairman. In recent years, he concentrated on developing a strong USF microwave/millimeter-wave capability providing R&D support to industry in such areas as experimentally validated computer-aided circuit design and device modeling. The first half of his engineering career was spent in industry with the Sperry Rand Corporation, where he headed the engineering staff of the Sperry Microwave Electronics Company in Clearwater, FL, for 13 years. As its Chief Engineer, he was responsible for applied research, product development, and production support operations covering a wide range of microwave system, equipment and component products (e.g., electromagnetic surveillance systems, microwave radiometric systems, radar performance analyzers, active and passive components—both ferrite and semiconductor, microwave integrated circuits).

Throughout his career Dr. Henning has been professionally active. He is a Life Fellow of the IEEE who joined the IRE and the AIEE in the 1940's and MTT-S in 1954. He was a member of MTT-S AdCom from 1966 to 1971 and its Chair in 1968. He was chairman of MTT-S's 1965 National and 1979 International Microwave Symposia and its Co-Chairman in 1995. On the local level, he chaired the Florida West Chapter of the MTT-S in 1983/84 and 1991/93. Current MTT-S activities include member of its Past President's Council, of its Awards Committee, and of Technical Committee #6 on Microwave and Millimeterwave Integrated Circuits. Other IEEE activities include chairing the IRE/IEEE's Florida West Coast Section in 1962 and member of its executive committee since 1980, SOUTHEASTCON '87 Technical Program Chairman, '85 Instrumentation and Measurement Technology Conference Associate Chairman, and an officer of several other IEEE conferences. Non-IEEE professional service involvement includes the Florida Engineering Society, where he focuses on education and outreach to pre-college students. His awards include the Citation of Honor by IEEE's United States Activities Board (1992), IEEE's Centennial Medal (1984), MTT-S/ARFTG's Automated Measurements Career Award (1986), in addition to many regional and local recognitions. He represented IEEE as an ABET Program Evaluator and is a member of Tau Beta Pi, Sigma Xi, the American Society of Engineering Education (ASEE) and is a registered Professional Engineer in Florida.





VIII. Presentation of New IEEE Fellows

Ten MTT-S members who were evaluated by our Society were elected to the grade of Fellow, effective 1 January 1996. Six other MTT-S members who were evaluated by other IEEE Societies were also elected to the grade of Fellow.

The grade of Fellow is conferred in recognition of unusual professional distinction. It is awarded at the initiative 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 fields of electrical engineering, electronics, computer engineering, and related sciences. This grade is not conferred automatically on nomination; only a fraction of those nominated are honored by elevation to the grade of IEEE Fellow.

Ted Saad, Honorary Life Member of the MTT-S AdCom, introduced the following new Fellows who elected to receive their certificates at the 1996 IMS Awards Banquet in San Francisco.

Adalbert Beyer: For the development of numerical field analysis techniques and their application to the design of new reciprocal and nonreciprocal millimeter-wave finline components.

Radoslaw M. Biernacki: For contributions to the theory and implementation of microwave and analog CAD technology.

Chun-Hsiung Chen: For contributions to the development of variational methods and other numerical methods applied to coplanar waveguides and various other structures.

E. James Crescenzi, Jr.: For contributions to the development of microwave amplifiers, integrated circuit technology, and miniature receivers for defense applications.

John M. Golio: For contributions to the characterization, parameter extraction, and modeling of microwave transistors.

Victor Fouad Hanna: For contributions to the development of advanced numerical techniques for analysis and modeling of passive microwave and millimeter-wave circuits.

Andrzej W. Kraszewski: For contributions to the science of microwave measurements and the development of techniques for measuring water content in moist substances and permittivity, density, and mass of particulate dielectric materials.

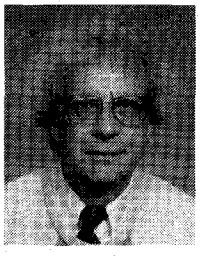
Paolo Lampariello: For pioneering investigations of leakage effects on open waveguides with application to a new class of millimeter-wave antenna.

Christopher M. Snowden: For pioneering work on the development and application of physical models to the design of microwave and millimeter-wave semiconductor devices and circuits

IX. Distinguished Microwave Lecturer

The MTT-S Distinguished Lecturer provides a very valuable service to our Society by giving many expert lectures to MTT Chapters around the world. The Lecturer will spend significant time traveling to keep our members updated on the latest developments in their field of expertise.

We were privileged to have Dr. Martin V. Schneider, who recently retired from AT&T Bell Laboratories, as the MTT-S Distinguished Lecturer from 1994 until 1996. The title of his lecture is: "Wireless Communications."



Martin V. Schneider (M'56–SM'71–F'76) received the M.S. degree in physics in 1955 and the Ph.D. degree (Dr. Sc.nat) in 1959 from the Swiss Federal Institute of Technology in Zurich, Switzerland. At the Institute, where W. Pauli was his teacher, he was involved in research on the properties of thin metallic films and their applications at microwave frequencies.

In 1961 he joined the group of J. Pierce and R. Kompfner at AT&T Bell Laboratories in Holmdel, NJ, and began work on active microwave devices and circuits needed for short hop radio systems at 11 and 18 GHz. Subsequently, he made contributions to the emerging area of microstrip components and planar transmission line elements which he applied to the realization of compact filters and heterodyne mixers at microwave and millimeter-wave frequencies ranging up to 230 GHz. As a member of the research team of A. Penzias and R. Wilson, he developed low-noise mixer diodes which were introduced into microwave systems, used for radio-astronomical experiments, and later successfully flown on space shuttle ATLANTIS. In this NASA mission, performed jointly with the University of Bern, Switzerland, both his devices and circuits served as sensitive detectors and low-noise receivers for mapping the concentration and distribution of trace molecules and regular constituents (H_20, 0_3 and CIO) in the upper atmosphere. He expanded his work into the optical field by devising and constructing the first high-speed photodiode consisting of a thin film Schotky diode with an optimized dielectric matching layer. He also analyzed the noise characteristics of lightwave receivers and found that the spectral noise density of optical receivers can be computed directly from the physical parameters of the photodiode and the HEMT device which performs the preamplification of the signal. He extended his work on microwave frequency converters devising a subharmonically pumped homodyne mixer which he and his team used for Gigabit rate digital modulators and demodulators in the LuckNet system, a wide area network pioneered by R. Lucky. He is currently a Supervisor in the Wireless Technology Research Department at AT&T Bell Laboratories in Holmdel. With his team members, he is presently working on modulated RF backscatter technology using communications principles originating with Carl Friedrich Gauss and Alexander Graham Bell.

Dr. Schneider's technical and professional leadership has been recognized by a number of awards including the Microwave Prize in 1979, the IEEE Centennial Medal in 1984, the IEEE Region I Award in 1984, and the IEEE/MTT Meritorious Service Award in 1989. He served on the IEEE Board of Directors in 1991/92, where he was in charge of the Electromagnetics and Radiation Division and where he led the IEEE Committee on New Technology Directions. As a member of the MTT AdCom from 1984 to 1990, he made contributions to improved membership services and to publications and was instrumental in organizing a number of scientific workshops.