

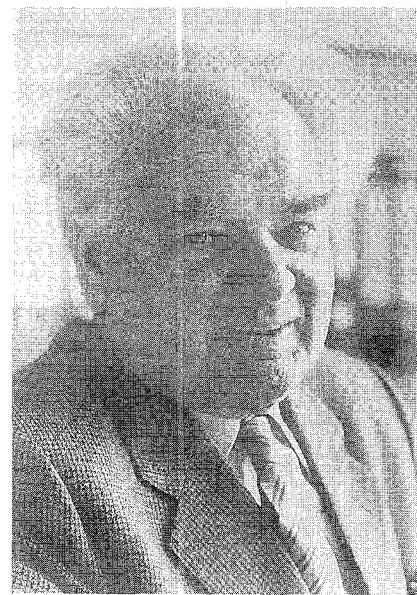
# 1993 Microwave Career Award

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 our field. In 1993, two individuals will be so honored:

Professor Herbert Döring, Technical University of Aachen, Germany, retired, and Professor Leonard Lewin University of Colorado, retired.

Both individuals had very distinguished teaching careers and have established themselves as world renowned researchers. MTT-S is very proud to have members like Professors Döring and Lewin.

Their Career Award Citation reads: FOR A CAREER OF MERITORIOUS ACHIEVEMENT AND OUTSTANDING CONTRIBUTIONS TO THE FIELD OF MICROWAVE THEORY AND TECHNIQUES.



Herbert K. Döring

**Herbert K. Döring** was born in Vienna, Austria on February 10, 1911.

He studied electrical engineering at the Technical University in his native town and received the diploma and the doctorate in 1934 and 1936 respectively.

From 1936 to 1938 he developed broadcast receivers at the Siemens and Halske AG, Vienna. Then he went for three years to the AEG-Research Institute at Berlin where he studied the behavior of electrons in high frequency fields. He could experimentally demonstrate the loss or gain of the average electron velocity in crossed electrical fields depending on the transit time angle. Stimulated by the just published invention of the Klystron, he constructed in 1940 a Klystron-Oscillator giving 100 W at 30 cm; in 1941 he joined the C. Lorenz AG where he continued work on velocity modulated coaxial-line oscillators, at first for fixed frequencies. Subsequently, he developed a tunable coaxial-line-Generator for the lower dm-range.

After the war, he developed radio tubes at C. Lorenz AG. Besides this work, he concluded his habilitation in 1949 at the Technical University of Stuttgart, where he gave lectures on ultra high frequency techniques and on microwave tubes.

At the beginning of 1952 he was appointed Full Professor at the Technical University Aachen, where he founded the Institute of Highfrequency Techniques and where he lectured till 1980. He was Dean of the faculty of mechanical and electrical engineering and later first Dean of the faculty of electrical engineering at the RWTH Aachen. He was visiting professor at the Indian Institute of Technology of Madras/Indien, in Teheran/Iran and also in Beijing and Nanjing/China. A great number of his students have meanwhile obtained high positions in industry and at universities. After his retirement, he works on Gyrotrons and on the history of electron tubes. His interests are, besides his professional field, classic music, mountain climbing, tennis.

Dr. Döring was for 5 years Vice President of the German Research Association (Deutsche Forschungsgemeinschaft) and for 8 years elected surveyor in this organization.

For 2 years he was elected vice president and for the following 2 years, President of the Communication Society in German (Nachrichtentechn. Gesellschaft in the VDE.)

He was regional editor of the Electronics Letters and is a member of the editorial board of the International Journal of Electronics and Communication (AEU).

He also was Kurator of the Physikalisch-Technische Bundesanstalt.

In 1970 he was elected ordinary member of the Rheinisch-Westfälische Academy of Sciences and in 1971 corresponding member of the Austrian Academy of Sciences.

He received the ring of honor of the Verband Deutscher Elektrotechniker (VDE) and the Wilhelm-Exner-Medal from the Austrian Tradesmen's Union.

In 1982 he became Honorary Professor at the Southeast University Nanjing.

He has served in the IEEE Section West Germany and is, since 1974, Fellow of the IEEE.

# 1993 Microwave Career Award



Leonard Lewin

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 our field. In 1993, two individuals will be so honored:

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Their Career Award Citation reads: FOR A CAREER OF MERITORIOUS ACHIEVEMENT AND OUTSTANDING CONTRIBUTIONS TO THE FIELD OF MICROWAVE THEORY AND TECHNIQUES.

**Leonard Lewin** was born on July 22, 1919 in Essex, England. He graduated from Southend-on-Sea High School in 1937 when he joined the Marconi Wireless Telegraph Company, working on radio and antennas. In 1941 he became an instructor in radio for the British armed forces, and thereafter, joined the Admiralty Signals Establishment as a Temporary Experimental Officer, working on radar and antenna design till the end of World War II. In 1946 he joined the Standard Telecommunication Laboratory as a senior engineer, where he participated in the design of the first linear electron accelerator to 1MeV, and the first British commercial microwave link. In 1950 he became head of the Microwave Department, working on the design of microwave components, antennas and long-haul millimetric waveguide systems. In 1960 he was appointed assistant manager of the Transmission Research Laboratory, and in 1967, after a one-year sabbatical at the University of Colorado at Boulder, he was promoted to the position of Senior Principal Research Engineer.

In 1968 he emigrated to the U.S. and was appointed a professor of electrical engineering at the University of Colorado, becoming Coordinator of the MS Interdisciplinary Program in Telecommunications till his retirement at the end of 1986.

Lewin is the author of some 40 patents and nearly 200 technical publications, including 10 research books on waveguides, on mathematics, and on telecommunications, some of which he co-authored or edited.

He has received two IEE (UK) Premium Awards; and in 1963 the IEEE Microwave Prize and the W. G. Baker award for his pioneering paper on singular integral equation methods of analyzing waveguide structures. In 1967 the University of Colorado awarded him an honorary D.Sc degree, and in 1981 he became a Fulbright Scholar, lecturing in Austria, Turkey and Yugoslavia. He has researched and taught at the Ecole Nationale des Telecommunications in France in 1981 and in 1990, the University of Auckland in New Zealand in 1987, and at the Max-Planck-Institut fur Mathematik in Germany in 1991, where he completed his latest book on the polylogarithm function, a mathematical interest he has pursued throughout his adult life.

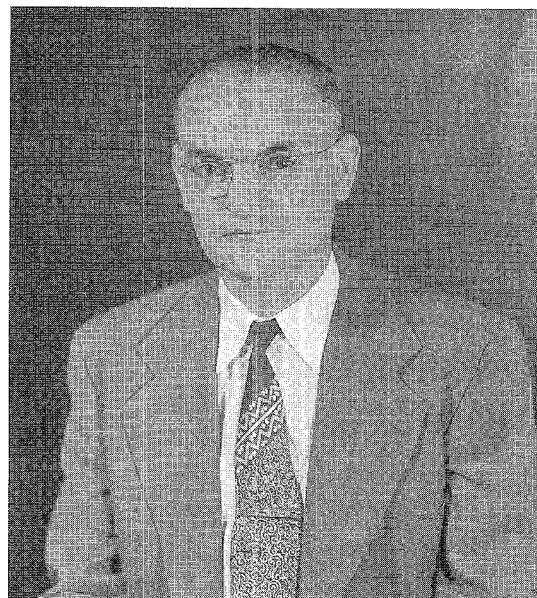
Lewin has participated in local chapter activities of the IEEE, and also nationally at MTT symposia and various IEEE sub-committees. He is an IEEE Fellow, a member of the U.S. National Committee of URSI, a Chartered Electrical Engineer (UK), and a Fellow of the British Interplanetary Society. He has reviewed technical papers for a number of journals, and is a consultant to both British and U.S. companies. He is very concerned with social and, in particular, educational matters, and has served on the Accountability Committee and the Advisory Committee for the Talented and Gifted of the local school district. In 1987 he was invited to give the IEEE (New Zealand) National Prestige lecture on the topic of Education, a subject on which he has written a number of articles, particularly as it pertains to the teaching of science and mathematics. He is currently a Professor Emeritus of the College of Engineering and Applied Science at the University of Colorado at Boulder.

# 1993 Pioneer Award

The Pioneer Award recognizes contributions which have had major impact on our field and have stood the test of time. The basis for the 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, i.e. it recognizes important technical contributions that have had a continuing impact on the practice of microwave engineering, for a period exceeding two decades.

In 1993 we have two winners: Dr. Claud Cleeton, retired Associate Director of the Naval Research Laboratory, and Dr. C. Lester Hogan, retired President and Chief Executive Officer of Fairchild Camera and Instrument.

Dr. Cleeton is cited "For Pioneering Contributions to Microwave Spectroscopy." Dr. Cleeton's notebook is now in the Smithsonian National Museum of American History, Washington DC, Accession 1984.0408. Some of the fundamental work was published in a paper entitled: "Electromagnetic Waves of 1.1 cm Wavelength and Absorption Spectrum of Ammonia," *Phys. Rev.*, Vol. 45, pp 234-237, Feb. 15, 1934.



Claud E. Cleeton

**Claud E. Cleeton** was born December 11, 1907, in Schuyler County, Missouri, and grew up on a farm there. He married Mary Ellen Underwood, and they live in Bellevue, Washington. They have two daughters: Sarah Elizabeth Kakaley of Renton, Washington, and Sue Ellen Guldi of Kirkland, Washington. He received the BS degree in Education from the Northeast Missouri State Teachers College in 1928, the MS degree in Physics from the University of Missouri in 1930, and the PhD degree in Physics from the University of Michigan in 1935.

Dr. Cleeton was an Instructor in Physics for a total of five years at the Junior College in Moberly, MO, the Teachers College in Kirksville, MO and the University of Michigan. He joined the U.S. Naval Research Laboratory in Washington D.C. in 1936 where he held various positions in the field of Electronics until retiring in 1969 as Associate Director of Research in Electronics.

He is a fellow of the IEEE, member of the American Physical Society and Sigma Xi. He received numerous awards among which was the Present's Certificate of Merit from President Truman in 1946 and the Navy's Distinguished Civilian Service Award in 1969.

He was granted a dozen patents in electronics and after retirement published two books, "The Art of Independent Investing," Prentice-Hall and "Strategies for the Options Trader", John Wiley. In recent years he has written and marketed computer programs.

His PhD thesis at the University of Michigan was "1.1 cm Waves and the Absorption Spectrum of Ammonia". A microwave spectrometer was constructed for this work. It used two large Navy brass searchlight mirrors and a diffraction grating made of 18 aluminum sheets 7.4 cm wide. These elements were mounted in a frame and hinged so as to rotate together. The source was a split anode magnetron and the receiver a crystal detector. An absorption cell was made of rubberized cloth and was arranged to be lowered into the beam for the measurements.

# 1993 Pioneer Award



C. Lester Hogan

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In 1993 we have two winners: Dr. Claud Cleeton, retired Associate Director of the Naval Research Laboratory, and Dr. C. Lester Hogan, retired President and Chief Executive Officer of Fairchild Camera and Instrument.

Dr. Hogan is cited "For Pioneering the Application of Ferrites to Microwave Devices." His paper "The Ferromagnetic Faraday Effect at Microwave Frequencies and its Applications," Bell System Technical Journal, Vol. 31, pp 1-31, January 1952, is the seminal paper publication on ferrite devices.

**Dr. C. Lester Hogan** was born and reared in Great Falls, Montana, and obtained his Bachelors Degree in Chemical Engineering at Montana State University in 1942. After working in the Research Laboratories of Anaconda Copper Mining Company for several months, he decided to join the US Navy. He was inducted as an Ensign in 1943 and was placed on inactive duty in June of 1946.

His experience in the Navy, all related to the Acoustic Torpedo, led him to get his Ph.D. in Physics at Lehigh University in 1950. Since Bell Labs had developed this top secret torpedo, his experience in the Navy brought him into close contact with the Bell Laboratories and the engineers and scientists at Bell Labs that were involved in this new weapon. The Bell Labs people spent a great deal of their time teaching Hogan the electronics he needed in order to fully understand the operation of this amazing device. From this relationship, Hogan decided that as soon as the war was over he was going to get a Ph.D. in Physics and the Bell Labs people urged him to join the Laboratories as soon as his schooling was finished. He entered Lehigh University in June of 1946 and received his Doctorate in Physics in June of 1950. He then joined Bell Labs on August 1, 1950.

In November, 1950, he had successfully demonstrated the microwave gyrator, circulator, and isolator with the help of at least a dozen people at Bell Labs who became very excited about the possibility of such a device. Without their help, encouragement, and support these devices could not have been demonstrated so rapidly.

The invention received a great deal of attention throughout the world, and, as a result, he joined Harvard University as an Associate Professor in Applied Physics in 1953. In 1954 he was promoted to Gordon McKay, Professor of Applied Physics.

From 1958 to 1968, Hogan served as General Manager of the Motorola Semi-conductor Products Division, and during that period, became Executive Vice President of the parent Company and a member of the Board of Directors. During this period, he built Motorola's Semiconductor Division from a small Laboratory operation that supplied devices almost exclusively to other Divisions of Motorola into a Company that equalled or excelled Texas Instrument both in sales and in profitability.

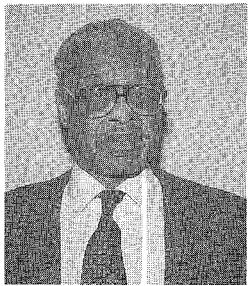
In 1968, Hogan joined Fairchild Camera & Instrument Corporation as President and Chief Executive Officer and stepped down from this position in 1974.

Hogan has received many awards during his career. They included the Frederik Philips Gold Medal from IEEE in 1976. In 1977, he was elected to membership in the National Academy of Engineering. In 1978 he was elected to an Honorary Fellow of the IEE (London), and at the present time is the only American holding this award. In 1979, he received the Medal of Achievement from the American Electronics Association.

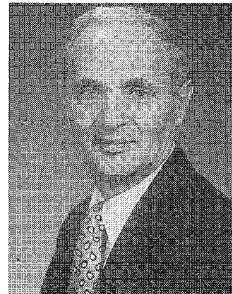
In addition, he has served on many Advisory Councils in Electrical Engineering and Computer Sciences such as MIT (1974-1985); University of California at Berkeley (1968-date); Princeton (1957-1968); Lehigh University (1965-1971); Stanford U. (1977-1987); Oak Ridge National Labs (1978-1982). In addition, he has served on approximately a dozen Corporate Boards of Directors, and has served on many local and national foundations.

He has received Honorary degrees from Montana State University, Lehigh University, Worcester Polytechnic, and Harvard University. In addition, he has received the Berkeley Citation from University of California at Berkeley.

# 1993 Microwave Application Award



John Carter



Irving Reingold

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, novel use of components, or both.

The 1993 recipients of the award are: Irving Reingold and John Carter, formerly of the US Army Laboratory Command, Electronics Technology and Devices Laboratory, Fort Monmouth, NJ.

The award citation reads: "FOR GAS DISCHARGE AND FERRITE DUPLEXER APPLICATIONS TO MILITARY RADAR."

**John Carter** received the B.S. degree in physics from West Virginia State University, Morgantown, and has performed graduate studies at New York University and Monmouth College.

John Carter has over forty years experience in the development of high-power components for power conditioning systems and high-power microwave transmitters. These include gas discharge devices, ferrite devices, and optical and microwave transmitters. Mr. Carter has also worked extensively in the areas of high-power microwave effects, pulse generators, and X-ray generators. Since 1987 he has been Consultant to the U.S. Army Electronics Technology and Devices Laboratory, Fort Monmouth, NJ, in high-power electronics and applications. Earlier, from 1965 to 1987 he was Project Manager for research and development for new concept and devices for power conditioning and radar transmitters, for the U.S. Army Electronics Technology and Devices Laboratory and predecessor organizations. From 1949 to 1965, he was Project Engineer in the same organization, specializing in gaseous electronics and solid-state physics. He has over 50 professional publications and holds over 25 patents.

**Irving Reingold** retired in March 1985 as Deputy Director of the Fort Monmouth, New Jersey Electronics Technology and Devices Laboratory (ETDL). From March 1985 to June 1989 he was associated with the Southeastern Center for Electrical Engineering Education (SCEEE) as an Adjunct Professor and Consultant; since June 1989 until November 1992, he has been associated with Geo-Centers, Inc., the follow-on support service contract to ETDL. Since March 1985 he has worked on numerous special assignments for the Laboratory Director and Deputy Director. Prior to his position as Deputy Director of the Electronics Technology and Devices Laboratory, he served as Director of the Beam, Plasma and Display Devices Division of the Laboratory, US Army Electronics Research and Development Command, Fort Monmouth, NJ. His activities at the Fort Monmouth Laboratory complex since 1945 covered a wide spectrum of technologies; including radar system; microwave tubes and associated transmitter devices; display related development, techniques, and applications; and high energy pulsers for directed energy weapons. He has published extensively, and is the holder or co-holder of a dozen patents.

Irving Reingold is and was active on many government, Institute of Electrical and Electronic Engineers (IEEE), and Society for Information Display (SID) committees. He was the Army Deputy Member of the Advisory Group on Electron Devices (AGED); was a member of the Sponsors Advisory Committee for the SID-IEEE-AGED Biennial Display Research Conference; was a member of the Administrative Committee of the IEEE Professional Society on Electron Devices; and a member of the IEEE PRESS Editorial Board. He was the 1985-1990 Chairman of the IEEE NJ Coast Section Honors and Awards Committee.

Irving Reingold received the B.S. degree and the Engineer's Degree from the Newark College of Engineering (now the New Jersey Institute of Technology) in 1942 and 1949 respectively. He is a licensed Professional Engineer in the State of New Jersey; a Life Fellow of the IEEE; a Fellow of the Society for Information Display; and a member of Sigma Xi. He was the recipient of the 1952 US Army Electronics Research and Development Laboratory Technical Leadership Award and the 1978 Frances Rice Darne Memorial Award presented by the SID. In 1985 he was the recipient of the Department of the Army Commander's Award and Medal of Meritorious Civilian Service, the Office of the Under Secretary of Defense for Research and Development Citation for Service on the Advisory Group on Electron Devices, and the IEEE Region 1 Award for Electrical Engineering Management. In 1988 he received the Beatrice Winner Memorial Award presented by the SID; and in 1990 he received the IEEE Professional Achievement Award. In 1990, Mr. Reingold was invited to become a member of the MIT Electromagnetics Academy for a five year term. He is listed in Who's Who in the East, and American Men and Women of Science; Who's Who in Technology Today; Leaders in Electronics; and Who's Who in Aviation and Aerospace, US Edition. He is presently a member of the New Jersey Institute of Technology Project CAP (Career Advancement Plan) Workforce 2000 Action Council. Mr. Reingold is the co-recipient (with John Carter) of the 1992 IEEE Microwave Theory and Techniques Society Applications Award. This prestigious award consists of a certificate and a cash sum of \$1,000, and is in recognition of the development of gas discharge and ferrite microwave duplexers and their application to high power radar systems.

# 1993 Microwave Prize

## Z.B. Popović, R.M. Weikle II, Moonil Kim, and D.B. Rutledge

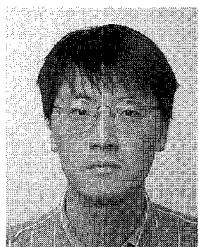
The Microwave Prize is awarded annually to the author or authors of a paper, published in the IEEE Transactions on MTT or any other IEEE publication, which is judged to be the most significant contribution in the field of interest of the Society in the calendar year preceding that in which the selection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

The 1993 Microwave Prize was awarded to: Z. P. Popović, R. M. Weikle II, Moonil Kim and D. B. Rutledge for their paper: "A 100-MESFET Planar Grid Oscillator" IEEE Transactions on Microwave Theory and Techniques Vol. 39, No. 2, February 1991, pp 193-199.



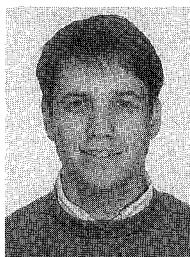
**Zoya Basta Popović** was born in Belgrade, Yugoslavia, in 1962. She received the Dipl. Ing. degree in electrical engineering from the University of Belgrade, Yugoslavia in 1985. Her Diploma thesis was the recipient of the City of Belgrade October Award. Ms. Popović received her M.S. and Ph.D. degrees from Caltech, Pasadena, California, in 1986 and 1990, respectively. During her graduate studies, she worked on W-band thin film antennas on thick dielectric substrates. Her Ph.D. thesis was in the area of spacial power combining for the microwave and millimeter-wave frequency region. In August 1990, Ms. Popović joined the faculty at the University of Colorado in Boulder as Assistant Professor in electrical engineering. She teaches courses in the area of electromagnetics, microwaves and optics, and is in charge of the microwave laboratory. She has developed an undergraduate microwave laboratory course, as well as a graduate level laboratory course in active microstrip circuit design. Her current research is in the microwave and integrated optics areas. Specific research topics in which Ms. Popović is involved in include quasi-optical active microwave and millimeter-wave circuits, with emphasis on design of large scale oscillator power-combiners and studying modulation, injection-locking and nonlinear properties of these devices. Her other current research interests are in the areas of active antennas, coplanar waveguide circuit modeling, high efficiency microwave and millimeter-wave amplifier design, optical control of microwave circuits, electrooptic sampling of microwave circuits, and efficient polymeric high speed integrated electrooptic devices and circuits. Ms. Popović is a member of IEEE MTT, and was elected a member of Commission D of URSI in 1991. She is currently serving as Chairman for the IEEE Boulder/Denver Joint MTT/AP/GRS Chapter. In 1992, she received the Junior Faculty Development Award from the University of Colorado.

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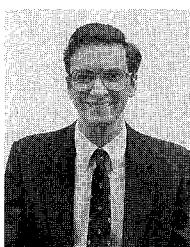


**Moonil Kim** (S'91) was born in Soeul, Korea, on March 14, 1965. He received the B.S. degree from the Illinois Institute of Technology in 1987, and the M.S. degree from the California Institute of Technology in 1988. He is expected to receive the Ph.D. degree from California Institute of Technology in December 1992. Afterwards, he plans to work for Gold Star, in Seoul, Korea.

As a member of the MMIC group at Caltech, he worked on quasi-optical millimeter-wave power-combining components such as monolithic/hybrid grid oscillators and beam-steering arrays. Recently, he built a 100-element HBT X-band grid amplifier which showed a gain of 10 dB at 10 GHz with 3 dB bandwidth of 1 GHz. He was able to characterize the amplifier grid in gain, power, and the noise performances. He also converted the amplifier grid into an oscillator with an external quasi-optical feedback circuit, built an amplifier/oscillator grid-array system, and demonstrated the amplifier as an AM modulator.



**Robert M. Weikle, II** was born in Tacoma, WA on February 13, 1963. He received the B.S. degree in electrical engineering and physics from Rice University, Houston, TX in 1986. In September 1986, he joined the microwave and millimeter-wave IC research group at the California Institute of Technology. He received his M.S. and Ph.D., both in electrical engineering, from Caltech in 1987 and 1992, respectively. His doctoral research was in the area of quasi-optical planar arrays and their application to large-scale microwave and millimeter-wave power combining. From January to December 1992, he was a member of the Department of Applied Electron Physics at Chalmers University of Technology in Göteborg, Sweden. At Chalmers, he researched and helped develop millimeter-wave HEMT amplifiers and quasi-optical resistive mixers. In addition, he investigated frequency conversion using hot electron effects in thin superconducting films. In January 1993, he joined the faculty at the University of Virginia, Charlottesville, VA, where he is now an assistant professor of electrical engineering. His research interests include the development of high-frequency solid-state devices, millimeter-wave integrated circuits and quasi-optical components and techniques. Dr. Weikle is a member of Phi Beta Kappa, Tau Beta Pi, and the American Physical Society, as well as IEEE.



**David B. Rutledge** received the B.A. degree in mathematics from Williams College, Williamstown, MA, in 1973, the M.A. degree in electrical sciences from Cambridge University, Cambridge, England, in 1975, and the Ph.D. degree in electrical engineering from the University of California at Berkeley in 1980. In 1980 he joined the faculty at the California Institute of Technology, Pasadena, CA, where he is now Professor of Electrical Engineering. Previously he designed microwave data-link systems at General Dynamics Corporation, Fort Worth, Texas, from 1975 to 1976. He was a visiting scientist at CSIRO, New South Wales, Australia, in the summer of 1985, and at the Research Institute for Electrical Communication, Tohoku University, Sendai, Japan, in the spring and summer of 1988. He has been a consultant for the Aerospace Corporation, Litton, the Army Night Vision Laboratory, United Technologies, and TRW. His research is in developing microwave and millimeter-wave integrated circuits and applications, and in software for computer-aided design and measurement. He is co-author with Scott Wedge and Richard Compton of the software CAD program, Puff, which has over 10,000 users worldwide. His research group at Caltech developed several key ideas in integrated-circuit antennas, including lens-coupled antennas for focal-plane arrays, anisotropic etching for fabricating horns, and membrane technology for suspending metal antennas. In addition, his group first demonstrated many active grid components, including phase shifters, oscillators, mixers and amplifiers. He is a winner of the NSF Presidential Young Investigator Award and the Japan Society for the Promotion of Science Fellowship.

1993

## Distinguished Service Award

### Stephen F. Adam

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 years honoree is Dr. Stephen F. Adam, who served MTT-S and IEEE in various functions, including President of our Society.

The citation for the Distinguished Service Award reads:

“FOR HIS OUTSTANDING AND DEDICATED SERVICE TO THE SOCIETY.”



**Stephen F. Adam** is a native of Hungary. He has received BS and MS degrees in Mechanical Engineering, MS and PhD degrees in Electrical Engineering (1951, 1952, 1965, respectively). He also holds Teachers Life Credentials in the State of California since 1961. He is President, CEO of Adam Microwave Consulting, Inc., since its founding, 1984. He was an employee of Hewlett Packard Company for 27 years. He's held various R&D and engineering management positions. His last assignment was the Principal Engineer of the Microwave and Communications Instruments Product Group.

Stephen F. Adam is a Fellow of IEEE, 1980 President of the Microwave Theory and Techniques Society; Administrative Committee member ('73-'83). He has held various committee memberships—and chairmanships within the MTT Society, including: Standards Coordinating Committee, member (1964-1970), Chairman (1970-1978); Member of Symposia Technical Program Committee (1971-present) Technical Program Committee Chairman (1975 Symposium); General Chairman of 1984 Symposium; Special Issue of Transactions Editor 1975 and 1978; Vice President, Chairman of Long Range Planning Committee 1979; Member of Awards Committee in various years. Division IV representative to the Transnational Relations Committee (1981-1985). In 1983/84 he was Distinguished Microwave Lecturer. He is Technical Committee Chairman of MTT-11, Microwave Measurements (1988-present). Member of Past-Presidents Council, Advisor to MTT-S Presidents (1981-present). Member of the MTT-S Transactions Editorial Review Committee, Member of the MTT-S Letters Journal Editorial Review Board.

He is Administrative Committee member of Instrumentation and Measurement Society (1990-present), Awards Chairman (1987-present), Division II delegate to the Awards and Recognition Committee of the Technical Activities Board (1988-present). Member of the Fellow Award Selection Committee (1991-1993). Board of Director of (IMTC) Instrumentation and Measurement Technical Conference. General Chairman of 1990 IMTC. Member of the Morris E. Leeds Award Committee (1981-1987), Chairman (1983-1985). Executive Committee Member of CPEM (Conference on Precision Electromagnetic Measurements) 1977-1980). Recipient of several awards, Centennial Medalist. Secretariat (US Delegate) of the International Electrotechnical Commission (IEC) IEC-TC66-WG5 Technical Committee 66/Working Group #5 (1968-1972). Member of the JIRCSMPCC (Joint Industry Research Committee for the Standardization of Miniature Precision Coaxial Connectors) sponsored by the Department of Commerce (1968-1972). Member of the Association of Old Crows (AOC) since 1978. He is the author of numerous technical articles, and of the textbook: *Microwave Theory and Applications* (Prentice Hall 1969).

# 1993

## Distinguished Educator Award

### Arthur A. Oliner

The creation of 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.

This award is to be presented to a distinguished educator in the field of microwave engineering and science who exemplifies the special human qualities of the late Fred J. Rosenbaum who considered teaching a high calling and demonstrated his dedication to MTT-S through tireless service.

PRIZE: A Plaque and honorarium of \$1,000.

BASIS FOR JUDGING: The awardee must be a distinguished educator, recognized, in general, by an academic career. It is desirable for the candidate to have received other teaching awards. 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. Relevant letters of support are encouraged.

The candidate shall also have an outstanding record of research contributions, documented in archival publications. The candidate shall have a record of many years of service to MTT-S.

The first recipient of the Distinguished Educator Award is Professor Arthur A. Oliner, a world renowned scientist. Many of his Ph.D. students became well-known scientists, educators and managers in the U.S. and abroad. One of Prof. Oliner's Ph.D. student described Dr. Oliner so well: "You have a gift of insight into the heart of a problem, and the ability to make simple models which represent the important features. Your patience, attention to detail, and genuine interest in your students are outstanding. You are able to understand and to communicate in ways that few people can. You are one of the few people I know who knows how to converse, to listen with attention and appreciation and then respond in a kind and thoughtful manner. I am continually impressed by your dedication to whatever you take on, always striving to give your best, and always expecting the best from those who work with you." . . . "I am a better, more useful man today for having known you."

Dr. Oliner has been, and still is, an active participant in MTT-S Adcom. We are privileged to have people like Prof. Oliner in our MTT Society.

**Arthur A. Oliner** (M'47-SM'52-F'61-LF'87) was born in Shanghai, China, on March 5, 1921. He received the B.A. degree from Brooklyn College, Brooklyn, NY, and the Ph.D. degree from Cornell University, Ithaca, NY, both in physics, in 1941 and 1946, respectively.

He joined the Microwave Research Institute of the Polytechnic Institute of Brooklyn, NY, in 1946, and was made Professor in 1957. From 1966 to 1971, he was Head of the Electro-physics Department; he then became Head of the combined Department of Electrical Engineering and Electro-physics from 1971 through 1974. He was also the Director of the Microwave Research Institute from 1967 to 1981. During the summer of 1964, he was a Walker-Ames Visiting Professor at the University of Washington, Seattle, and during the 1965-1966 academic year, he was on a sabbatical leave at the Ecole Normale Supérieure, Paris, France, under a Guggenheim Fellowship. During the summer of 1973, he was a Visiting Professor at the Catholic University, Rio de Janeiro, Brazil; in the spring of 1978, he was a Visiting Research Scholar at the Tokyo Institute of Technology, Japan; in the spring of 1980 he was a Visiting Professor at the Huazhong (Central China) Institute of Technology, Wuhan, China; and in the fall of 1982 he was a Visiting Professor at the "La Sapienza" University of Rome, Rome, Italy.

Dr. Oliner's research has covered a wide variety of topics in the microwave field, including network representations of microwave structures, precision measurement methods, guided-wave theory with stress on surface waves and leaky waves, traveling-wave antennas, plasmas, periodic structure theory, and phased arrays. His interests have also included waveguides for surface acoustic waves and integrated optics and, more recently, novel leaky-wave antennas for millimeter waves and leakage effects in millimeter-wave integrated circuits. He is the author of more than 180 papers and the coauthor of coeditor of three books. He served on the Editorial Boards of the journal Electronics Letters (published by the British IEEE) and the volume series Advances in Microwaves (Academic Press). He is also a former Chairman of a National Academy of Sciences Advisory Panel to the National Bureau of Standards (now NIST). He has been a consultant to industry since 1952, for IBM, Raytheon, Boeing, Hughes, AIL, Kaiser Aluminum, Rockwell, MIT Lincoln Lab., CBS Labs., etc. He was a founder of Merrimac Industries and has been on its Board of Directors since 1962.

Dr. Oliner is a Fellow of the AAAS and the British IEE, and he is a member of the National Academy of Engineering. He has received prizes for two of his papers: the IEEE Microwave Prize in 1967 and the Institution Premium, the highest award of the British IEE, in 1964. He was named an Outstanding Educator of America in 1973, and in 1974 he received a Sigma Xi Citation for Distinguished Research. He was President of the IEEE MTT Society, its first National Lecturer, a member of the IEEE Publication Board, and General Chairman of three symposia. In 1982, he received the IEEE Microwave Career Award, and he is one of the six living Honorary Life Members of the MTT Society. In 1984, he was a recipient of the IEEE Centennial Medal, and in 1988 a special retrospective session was held in his honor at the International Microwave Symposium. He is a member of several Commissions of the International Union of Radio Science (URSI), a past U.S. Chairman of Commissions 1 (now A) and D, and a member of the U.S. National Committee of URSI. In 1990, he received the URSI van der Pol Gold Medal, which is awarded triennially, for his contributions to guided-wave theory.



# 1993

## N. Walter Cox Award

### James E. Degenford

The N. Walter Cox Award has been established in recognition of the qualities of N. Walter Cox and his service to the MTT Society, prior to his untimely death in 1988. It is given aperiodically to a Society Volunteer whose efforts on behalf of MTT-S best exemplify his spirit and dedication.

This year's recipient is Dr. James E. Degenford of Westinghouse Electric Corporation. Jim has served nine years on ADCOM, most of them as our treasurer. In his quiet and efficient way, he did a tremendous amount of work and is best described by one of his colleagues as "one of the finest individuals, I know"!

The citation reads: "FOR EXEMPLARY SERVICE, GIVEN IN A SPIRIT OF SELFLESS DEDICATION AND COOPERATION."

**James E. Degenford** (S'59, M'64, SM'85, F'86) was born in Bloomington, Illinois, on June 11, 1938. He received the B.S., M.S., and Ph.D. degrees in electrical engineering from the University of Illinois, Urbana, in 1960, 1961 and 1964, respectively.

His work as a graduate student and Research Associate at the University of Illinois was in the fields of millimeter and submillimeter wave transmission systems and detection techniques. In 1965, he joined the Westinghouse Electric Corporation, Baltimore, Maryland, where he is currently a Senior Advisory Engineer in the GaAs Technology Laboratory working in the areas of Microwave and Millimeter Wave Monolithic Integrated Circuits. He has over 35 publications and 5 patents in the microwave field.

Jim has been an active member of the Microwave Theory and Techniques Society, serving first as chairman of the Baltimore AP/MTT chapter in 1974. In 1975, he joined the AdCom, of MTT-S as secretary and became an elected member in 1976. He served as Business Editor for the MTT-S transactions from 1976-1979 and Finance Chairman from 1979-1984. In 1986 he served as Finance Chairman of the International Microwave Symposium held in Baltimore and was elected to the grade of IEEE Fellow.

Dr. Degenford is a Registered Professional Engineer in the State of Maryland and is also a member of Tau Beta Pi and Sigma Xi.



# 1993 IEEE Fellow Awards

Twelve MTT-S members who were evaluated by our Society, were elected to the grade of Fellow, effective January 1, 1993. 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 Fellow IEEE:

<b>Fritz A. Arndt</b>	<i>For contributions to the field theory analysis utilized in the design of passive microwave and millimeter-wave components</i>
<b>Paolo Bernardi</b>	<i>For contributions to microwave interaction with biological systems</i>
<b>Les Besser</b>	<i>For contributions to computer-aided microwave circuit design</i>
<b>Zvi Galani</b>	<i>For leadership in the development of low-noise microwave signal generation techniques for missile and radar systems</i>
<b>William E. Hord</b>	<i>For contributions to microwave ferrite phase control components and their application to electronically scanned phased array antenna systems</i>
<b>Ferdo Ivanek</b>	<i>For contributions to the development of fundamental-frequency/microwave oscillators and amplifiers and their application in analog and digital radio relay systems</i>
<b>Stephen A. Maas</b>	<i>For contributions to the computer-aided analysis of microwave mixers and their distortion behavior</i>
<b>Koji Mizuno</b>	<i>For contributions to the development of electron devices for the short millimeter-and submillimeter-wave region</i>
<b>Ervin J. Nalos</b>	<i>For pioneering development and leadership in the application of high-power microwave devices</i>
<b>Ken-ichi Noda</b>	<i>For contributions to low-loss, millimeter-wave circular waveguides</i>
<b>David B. Rutledge</b>	<i>For leadership in the theory, development, and application of integrated antennas in the millimeter-wave and terahertz regimes</i>
<b>Vijai K. Tripathi</b>	<i>For contributions to microwave and millimeter-wave circuits and to coupled transmission-line techniques</i>