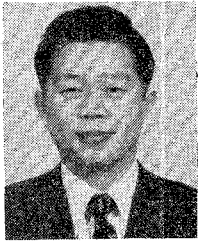


Contributors

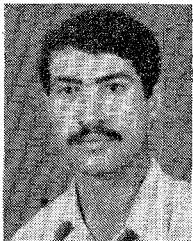


Masayoshi Aikawa (M'74) was born in Saga, Japan, on October 16, 1946. He received the B.S. and M.S. degrees in electrical engineering from the Kyushu University, Fukuoka, Japan, in 1969 and 1971, respectively.

He joined the Electrical Communication Laboratory, Nippon Telegraph and Telephone (NTT) Public Corporation, Tokyo, Japan, in 1971, and has since been engaged in researching and developing microwave-integrated-circuits for radio communication systems. He is now a

staff engineer of the Yokosuka Electrical Communication Laboratories NTT Public Corporation, Yokosuka, Japan. Recently, his major efforts have been directed toward millimeter-wave integrated circuits.

Mr. Aikawa is a member of the Institute of Electronics and communication Engineers of Japan.



Saod A. Alseyab (S'79) was born in Abilkhasseb, Southern Iraq, on August 13, 1948. He received the B.Sc. degree in electrical engineering with the equivalent of first-class honors from the University of Basrah, Iraq, in 1969, and the M.Sc. degree in Microwave Communications Engineering from the University of Leeds, Yorkshire, England, in 1976.

From 1969 to 1974 he was an instructor and assistant lecturer in the Department of Electrical Engineering at the University of Basrah. Presently he is with the Department of Electrical and Electronic Engineering at the University of Leeds, England, working towards the Ph.D. degree. His research is on designing microwave filters, duplexers, and multiplexers.

Mr. Alseyab is a member of the Institution of Electrical Engineers and the Institution of Engineers and Technicians.



Yakın Ayaslı was born in Ankara, Turkey, on February 14, 1946. He received the B.S. degree in electrical engineering from Middle East Technical University, Ankara, Turkey, in 1968. He received the M.S.E.E. and Sc.D. degrees in electrical engineering from Massachusetts Institute of Technology, Cambridge, MA, in 1970 and 1973, respectively.

He is currently with the Raytheon Research Division, Waltham, MA, on leave of absence from Middle East Technical University where

he is an Associate Professor in the Electrical Engineering Department.



I. J. Bahl, photograph and biography not available at the time of publication.



Udo Barabas was born in Arnstein, Germany, on September 17, 1943. He received the Dipl.-Ing. degree in electrical engineering from the Aachen Technical University, Aachen, Germany, in 1972, and the doctorate degree from the Ruhr-University, Bochum, Germany, in 1979.

He has worked in research on semiconductor devices and development of circuitry for the gigabit per second range.



Gerald G. Berry was born in 1932 in Los Angeles, CA.

In 1964 he joined the Aerospace Corporation, Los Angeles, where he is a Research Specialist in the Millimeter Wave Radiometry Section of the Electronics Research Laboratory. He has been engaged in the design and construction of millimeter-wave radiometers, with emphasis on research and development of 100- to 200-GHz mixers.



James B. Beyer (M'61-SM'79) was born in Horicon, WI on July 7, 1931. He received the B.S.E.E., M.S., and Ph.D. degrees from the University of Wisconsin, Madison, in 1957, 1959, and 1961, respectively.

From 1950 to 1954 he served in the U. S. Navy as an electronics technician engaged in shipboard radar maintenance. Upon resuming his studies in 1954, he held both teaching and research appointments at the University of Wisconsin. He has taught courses in the area of

electromagnetic theory, microwaves, antennas, and electronics since his appointment to the faculty in 1961. From 1968 to 1969 he was a Visiting Professor at the Technical University in Braunschweig, Germany. He is presently engaged in research on microwave semiconductor devices.

Prof. Beyer is a member of Eta Kappa Nu and Sigma Xi.

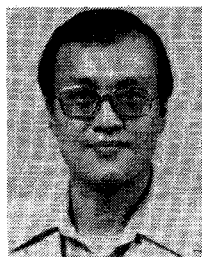


Jerome K. Butler (S'59-M'65-SM'78) was born in Shreveport, LA, on September 27, 1938. He received the B.S. degree from Louisiana Polytechnic University, Ruston, in 1960, and the M.S. and Ph.D. degrees from the University of Kansas, Lawrence, in 1962 and 1965, respectively.

From 1960 to 1965 he was a Research Assistant at the Center for Research in Engineering Sciences, University of Kansas. His research was related to electromagnetic wave propaga-

tion in anisotropic media and to the optimization and synthesis techniques of antenna arrays. In 1965, he joined the staff of the Institute of Technology, Southern Methodist University, Dallas, TX where he is now Professor of Electrical Engineering. His primary research areas are solid-state injection lasers, radiation, and detection studies of lasers, communication, and imaging systems, integrated optics and the application of integrated optical circuits, and quantum electronics. He has held consulting appointments with the Central Research Laboratory of Texas Instruments, Inc., the Geotechnical Corporation of Teledyne, Inc., Earl Cullum Associates of Dallas, and the University of California Los Alamos Scientific Laboratory. In the summers from 1969 to 1979 he was a Member of the Technical Staff, RCA Laboratories, Princeton, NJ, where he did research concerned with electromagnetic wave propagation in solid-state injection lasers.

Dr. Butler is a member of Sigma Xi, Tau Beta Pi, Eta Kappa Nu, and is a registered Professional Engineer in the state of Texas.



David C. Chang (S'65-M'67-SM'76) was born in Hupeh, China, on September 9, 1941. He received the B.S. degree in electrical engineering from Cheng Kung University, Tainan, Taiwan, China, in 1961, and the M.S. and Ph.D. degrees in applied physics from Harvard University, Cambridge, MA, in 1963 and 1967, respectively.

He joined the University of Colorado, Boulder, in 1967, and is now a Professor of Electrical Engineering and Director of the Electromagnetics Laboratory. In 1972 he was a Visiting Professor at Queen Mary College, University of London, London, England. In addition, he is an Associate Editor of *IEEE Transactions on Antennas and Propagation* and is Consultant to Kaman Science Corporation, Colorado Springs, CO, and Arthur D. Little Company, Cambridge, MA.

Dr. Chang is a member of the International Scientific Radio Union Commissions A, B, C, and E. He is the immediate past Chairman of the IEE-MTT-S 15 subcommittee on Microwave Field Theory, and Chairman of the Denver Chapter of the IEEE EMC/IM group.



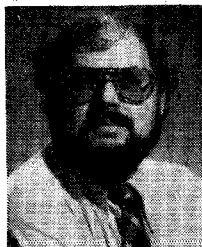
B. B. Chaudhuri (S'80), photograph and biography not available at the time of publication.



Edward G. Cristal (S'58-M'61-SM'66-F'80) was born in St. Louis, MO. He received the B.S. and A.B. degrees in electrical engineering and mathematics and the M.S. degree in electrical engineering from Washington University, St. Louis, MO, in 1957 and 1958, respectively, and the Ph.D. degree in electrical engineering from the University of Wisconsin, Madison, in 1961.

From March 1961 to January 1972 he was with the Electromagnetic Techniques Laboratory, Stanford Research Institute (SRI), Menlo Park, CA. At SRI he participated in programs of applied research and development of microwave and UHF components, including filters, multiplexers, directional couplers, impedance-matching networks, equalizers, and multipliers. From January 1972 to June 1973, he was Associate Professor of Electrical Engineering, McMaster University, Hamilton, Ont., Canada. He joined the Hewlett-Packard Company, Palo Alto, CA, in June 1973 where he is currently working in the areas of microwave oscillators and communications.

Dr. Cristal received the Microwave Applications Award for contributions to stripline and microstrip filter design in 1973. He is a member of the IEEE Instrumentation and Measurement-S and Microwave Theory and Techniques Societies.

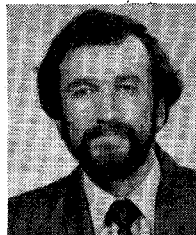


Robert L. Dickman was born in New York City on May 16, 1947. He received the A. B., M.A., M. Phil., and Ph. D. degrees in physics from Columbia University, New York, in 1969, 1972, 1974, and 1976, respectively.

In 1975 he was appointed a Research Associate in the physics department of Rensselaer Polytechnic Institute, Troy, NY. During his tenure in this position, he worked at the Millimeter-Wave Radio Astronomy Facility at the Aerospace Corporation, Los Angeles, CA,

doing research on interstellar molecular clouds. In 1978 he became a Member of the Technical Staff at Aerospace. His present research interests include millimeter-wave receivers, molecular line radio astronomy, radiative transport, and hydrodynamics.

Dr. Dickman is a member of the American Physical Society, the American Astronomical Society, and Sigma Xi.



Michael Franz (S'74-M'75) was born in Jakobsthal, Germany, on September 26, 1948. He received the Dipl. Ing. degree in electrical engineering from the Technische Universitaet, Munich, Germany, in 1973. In 1975, he received the M. S. degree in electrical engineering, and he completed the Ph. D. degree in electrical engineering in 1978 at the University of Wisconsin, Madison.

He has served as a Teaching Assistant in the Department of Electrical and Computer Engineering, University of Wisconsin. His research included the study of microwave-solid state interaction. Since 1978, he has been a Technical Manager with the Siemens Components Group in Cupertino, CA.

Dr. Franz is a member of Sigma Xi.



Richard B. Gold (S'70-M'79) was born in Pittsburgh, PA, on August 26, 1954. He received the B.S. degree in applied physics from Cornell University, Ithaca, NY, in 1974, and the M.S. degree in electrical engineering from Stanford University, Stanford, CA, in 1977.

From 1974 to 1976 he worked for the Microwave Semiconductor Division of Hewlett-Packard Company, Palo Alto, CA, on the development of GaAs FET process technology. In 1976 he joined Watkins-Johnson Company, Palo

Alto, CA, where his initial work involved the development of low-noise and power GaAs FET's. He is presently a Staff Scientist in the Solid-State Devices Division; his current work is focussed on ion implantation in GaAs and on the design of monolithic microwave GaAs IC's. He is also a Ph.D. candidate at Stanford where his dissertation research has dealt with the use of laser irradiation to fabricate alloyed contacts and heterostructures on GaAs.

Mr. Gold is a member of Phi Kappa Phi, Tau Beta Pi, the American Physical Society, and the Electrochemical Society.

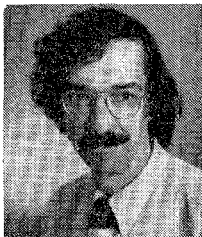


K. C. Gupta (M'62-SM'74) was born in 1940. He received the B.E. and M.E. degrees in electrical communication engineering from Indian Institute of Science, Bangalore, India, in 1961 and 1962, respectively, and the Ph.D. degree from Birla Institute of Technology and Science, Pilani, India, in 1969.

He worked at Punjab Engineering College, Chandigarh, India, from 1964 to 1965, the Central Electronics Engineering Research Institute, Pilani, India, from 1965 to 1968, and

Birla Institute of Technology from 1968 to 1969. Since 1969 he has been with the Indian Institute of Technology, Kanpur, India, and has been Professor of electrical engineering since 1975. On leave from the Indian Institute of Technology, he was a Visiting Professor at University of Waterloo, Canada from 1975 to 1976, Ecole Polytechnique Federale de Lausanne, Switzerland in 1976, Technical University of Denmark from 1976 to 1977, and Eidgenossische Technische Hochschule, Zurich, Switzerland in 1979. From 1971 to 1979 he was Coordinator for the Phased Array Radar Group of Advanced Centre for Electronic Systems at the Indian Institute of Technology. He has published three books: *Microwave Integrated Circuits* (Wiley Eastern and Halsted Press, 1974), *Microstrip Lines and Slotlines* (Artech House, 1979), and *Microwaves* (Wiley Eastern, 1979). He has published over fifty research papers and one patent in microwaves area.

Dr. Gupta is a Fellow of Institution of Electronics and Telecommunication Engineers (India) and a member of International Microwave Power Institute (Canada).



William R. Hitchens received the B.S. degree in physics from Washington University, St. Louis, MO, in 1968, and M.S. and Ph.D. degrees in physics from the University of Illinois, Urbana-Champaign, in 1971 and 1975, respectively.

While at the University of Illinois, he did research on epitaxial growth of InGaAsP heterojunction laser diodes and on fabrication and characterization of silicon MOS devices. In 1975, he joined the Watkins-Johnson Company, Palo Alto, CA, where he has been working on the growth of epitaxial GaAs for microwave device applications and the growth of single crystal YIG and other ferrites for microwave tuned devices.

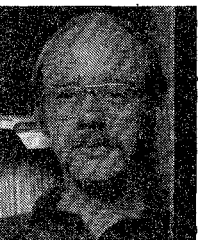
Dr. Hitchens is a member of **Tau Beta Pi**, **Sigma Xi**, and the West Coast and American Associations of **Crystal Growers**.



Andrzej Kaczowski was born in Gdynia, Poland, on November 16, 1946. In 1977 he successfully presented his doctoral thesis and received the Ph.D. degree.

He has been working as an Assistant Professor at the Institute of Electron Technology, Technical University of Warsaw, Poland, since 1969. His research works are focused on the theory and techniques of dielectric constant measurements at high-frequency ranges.

Dr. Kaczowski is a member of the Polish Association of Electrical Engineers.

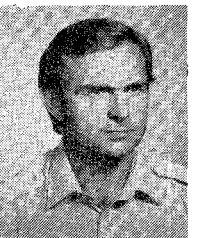


Edward F. Kuester (S'73-M'76) was born in St. Louis, MO, on June 21, 1950. He received the B.S. degree from Michigan State University, East Lansing, in 1971, and the M.S. and Ph.D. degrees from the University of Colorado, Boulder, in 1974 and 1976, respectively, all in electrical engineering.

Since 1976, he has been an Assistant Professor in the Department of Electrical Engineering at the University of Colorado at Boulder. His research has included the electromagnetic theory

of open waveguiding structures in optics as well as at microwave frequencies.

Dr. Kuester is a member of the Optical Society of America, and an associate member of **URSI Commission B**.

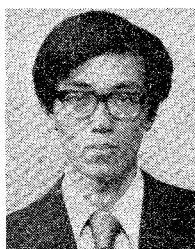


Andrzej Milewski was born in Warsaw, Poland, on April 19, 1939. He received the M.Sc., Ph.D., and D.Sc. degrees from the Technical University of Warsaw, Warsaw, Poland, in 1963, 1969, and 1976, respectively.

From 1963 to 1976 he was an Assistant Professor of Institute of Electron Technology, Technical University of Warsaw, where he is now a Professor. He is engaged in research works in the area of measuring of dielectric and magnetic properties of materials at the microwave

frequencies.

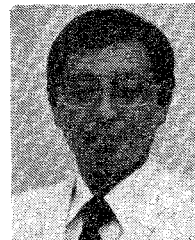
Prof. Milewski is a member of the Polish Association of Electrical Engineers.



Shinichi Miyauchi was born in Hyogo, Japan, on February 12, 1955. He received the B.S. and M.S. degrees in electronic engineering from Kobe University, Kobe, Japan, in 1977 and 1979, respectively.

In 1979 he joined the City Office of Kobe, where he is now in the Training Institute.

Mr. Miyauchi is a member of the Institute of Electronics and Communication Engineers of Japan.



Tanroku Miyoshi (S'67-M'72) was born in Osaka, Japan, on January 6, 1944. He received the B.S., M.S., and Ph.D. degrees in electronic engineering from the University of Tokyo, Tokyo, Japan, in 1967, 1969, and 1972, respectively.

In 1972 he was appointed Lecturer, and in 1974 became an Associate Professor in the Department of Electronic Engineering, Kobe University, Kobe, Japan. His research was primarily concerned with microwave circuits, solid-state

microwave oscillators, and microwave measurements. Since 1975 he has also been engaged in the research of optical circuits.

Dr. Miyoshi is a member of the Institute of Electronics and Communication Engineers of Japan and the Institute of Electrical Engineers of Japan. He received a Yonezawa Award in 1974 and the Outstanding Book Award with Professor T. Okoshi in 1977 both from the Institute of Electronics and Communication Engineers of Japan.



Kozo Morita was born in Wakayama, Japan, on November 30, 1943. He received the B.S. and M.S. degrees in electronics engineering from Kyoto University, Kyoto, Japan, in 1966 and 1968, respectively.

Since joining Electrical Communication Laboratories, Nippon Telegraph and Telephone (NTT) Public Corporation, Tokyo, Japan, he engaged in research on IF amplifier and mixer circuit for 20-GHz digital radio systems. He is currently responsible for research and develop-

ment of microwave digital radio systems as a Staff Engineer of Radio Transmission Section, Electrical Communication Laboratories, NTT Public Corporation, Yokosuka, Japan.

Mr. Morita is a member of the Institute of Electronics and Communications Engineers of Japan.



Karl B. Niclas (M'63) received the Dipl.-Ing. and Doctor of Engineering degrees from the Technical University, Aachen, Germany, in 1956 and 1962, respectively.

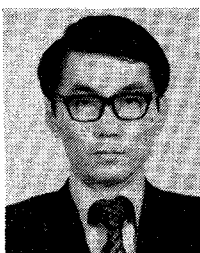
From 1956 to 1962 he was with the Microwave Tube Laboratory at the Telefunken G. m. b. H. Tube Division, Ulm-Donau, Germany. He was engaged in research and development on ultra-low-noise and medium-power traveling-wave tubes. In 1958 he became Head of the company's Traveling-Wave Tube Section and

Associate Manager of the Microwave Tube Laboratory. From 1962 to 1963, he was associated as a Senior Project Engineer with General

Electric Microwave Laboratory, Stanford, CA. His work was mainly concerned with theoretical and experimental investigations of single-reversal focused low-noise traveling-wave tube amplifiers, and resulted in the first lightweight amplifier of this type. In 1963 he joined the Technical Staff of Watkins-Johnson Company, Palo Alto, CA, and is presently Consultant to the Vice President, Devices Group. His present research efforts are primarily focused on advanced GaAs FET amplifiers, broadband power combining techniques, and wide-band GaAs FET oscillator concepts. From 1967 to 1976, he was Manager of the company's Tube Division. Before that, he was Head of the Low Noise Tube R&D Section, and prior to that he was engaged in a research program on new concepts for achieving high efficiency in traveling-wave tubes. He is the author of numerous papers and holds a number of patents.

Dr. Niclas, received the outstanding publications award in 1962 of the German Society of Radio Engineers.

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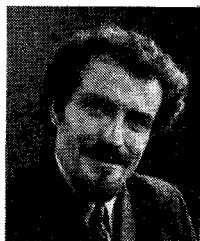
Hiroyo Ogawa was born in Sapporo, Japan, in 1951. He received the B.S. and M.S. degrees in electrical engineering from Hokkaido University, Sapporo, Japan, in 1974 and 1976, respectively.

He joined Yokosuka Electrical Communication Laboratories, Nippon Telegraph and Telephone Public Corporation, Yokosuka, Japan, in 1976, and has been engaged in the research of microwave integrated circuits. He is presently engaged in the research of millimeter-wave in-

tegrated circuits.

Mr. Ogawa is a member of the Institute of Electronics and Communication Engineers of Japan.

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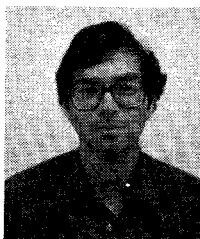


John David Rhodes (M'67) was born in Doncaster, Yorkshire, England on October 9, 1943. He received the B.Sc., Ph.D., and D.Sc. degrees in electrical engineering from the University of Leeds, Yorkshire, England, in 1964, 1966, and 1974, respectively.

From 1966 to 1967 he was a Research Fellow in the Department of Electrical and Electronic Engineering at the University of Leeds. He then joined Microwave Development Laboratories, Inc. Natick, MA, as a Senior Research En-

gineer. He currently holds a personal chair in the Department of Electrical and Electronic Engineering at the University of Leeds, and is also a Consultant in Microwave Engineering to Microwave Development Laboratories, Inc.

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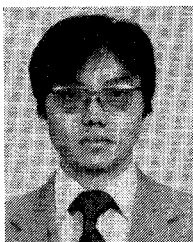


Marion W. Scott was born in Oklahoma City, OK, on February 21, 1952. He received the B.S., M.S., and Ph.D. degrees in electrical engineering from Southern Methodist University, Dallas, TX, in 1975, 1976, and 1979, respectively.

His research was in the field of dielectric optical waveguides. After graduation, he joined Vought Corporation's Advanced Technology Center, where he is engaged in research on laser radar devices.

Dr. Scott is a member of Eta Kappa Nu and Tau Beta Pi, and is an associate member of Sigma Xi.

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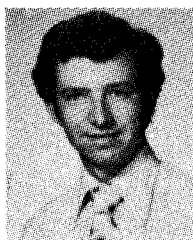
Toshiaki Tanaka was born in Osaka, Japan, on May 23, 1951. He received the B. S. and M. S. degrees in electrical engineering from Osaka University, Osaka, Japan, in 1975 and 1977, respectively.

Since joining the Yokosuka Electrical Communication Laboratory, Nippon Telegraph and Telephone Public Corporation (NTT), Yokosuka-shi, Kanagawa-ken, Japan, in 1977, he has been engaged in the research work on variable power dividers for satellite communica-

tion system. He is currently an Engineer of the Satellite Communication Equipment Section, Integrated Transmission System Development Division, Yokosuka Electrical Communication Laboratory.

Mr. Tanaka is a member of the Institute of Electronics and Communication Engineers of Japan.

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Walter T. Wilser (M'79) was born in Poughkeepsie, NY, on February 23, 1947. He received the B.A. degree in physics from Northeastern University, Boston, MA, in 1969, and the M.S. and Ph.D. degrees in physics from Cornell University, Ithaca, NY, in 1972 and 1974, respectively.

While at Cornell University, he did research on laser Raman Spectroscopy of micromolecules. In 1974 he joined the Solid State Division of Watkins-Johnson Company, Palo Alto, CA,

where he has been working on the fabrication of GaAs microwave devices including Gunn diodes, varactors, and FET's. He is presently the head of the Semiconductor R & D Section, and is responsible for GaAs FET development and production, as well as Gunn diode and YIG fabrication.

Mr. Wilser is a member of Phi Kappa Phi and the American Physical Society.

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William J. Wilson was born in Spokane, WA, on December 16, 1939. He received the B.S.E.E. degree from the University of Washington, Seattle, in 1961, and the M.S.E.E., E.E., and Ph.D. degrees in electrical engineering from the Massachusetts Institute of Technology, Cambridge, in 1963, 1964, and 1970, respectively.

From 1964 to 1967 he served in the U.S. Air Force, working on military communication satellites. In 1970 he joined the Aerospace Corporation and was involved in the design and

construction of the millimeter-wave receivers and radio astronomy observations. In 1976 he was on a leave of absence in the Electrical Engineering Department at the University of Texas at Austin. Since his return to Aerospace in 1977, he has been involved with research in millimeter-wave radiometers and low noise receivers.

Dr. Wilson is a member of the American Astronomical Society, Commission V of the International Union of Radio Sciences (URSI), the International Astronomical Union, Tau Beta Pi, and is an associate member of Sigma Xi.