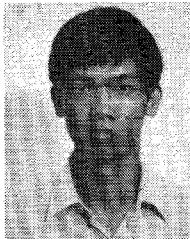


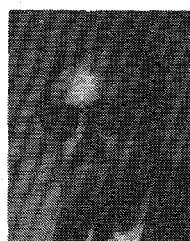
# Contributors



**Weng Cho Chew** was born in Kuantan, Malaysia, on June 9, 1953. He received the B.S. degree in 1976, both the M.S. and Engineer's degrees in 1978, and Ph.D. degree in 1980, all in electrical engineering from the Massachusetts Institute of Technology, Cambridge, MA.

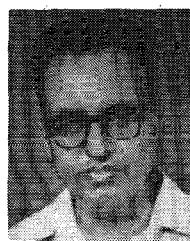
His research interest has been in the area of microwave and dipole interference over stratified media and wave propagation in borehole for geophysical exploration. He is presently interested in solving mixed boundary value problems associated with well-logging tools, microstrip antenna, and microwave integrated circuits. At present, he is a postdoctoral research associate with the Research Laboratory of Electronics and Electrical Engineering Department of MIT. As a student, he has worked as a teaching assistant and a research assistant. During the summers of 1978 and 1979, he worked at Schlumberger-Doll Research, CT, on the theoretical investigation of well logging tools.

Dr. Chew is a member of Eta Kappa Nu and Tau Beta Pi.



**Jacques Citerne** was born in Arras, France, on October 5, 1945. He received the Doctor in Physic degree in 1978 from the Technical University of Lille, France.

He has since held the leadership of the Propagation and Circuits group of the Microwave and Semiconductor Center Villeneuve D'Ascq Cedex, France, which is an university laboratory supported by the French National Center of Scientific Research (LA CNRS 287). The group is principally working on problems of microwave integrated circuit in centimeter, millimeter, and submillimeter waves with special emphasis on the role of discontinuities in the design of open components. Since October 1980 he has been Professor of Electrical Engineering at the National Institute of Applied Sciences at Rennes, France, where his current interest is the open waveguide components and printed antennas with applications in mobile telecommunication systems.



**B. N. Das** received the M.Sc. (Tech.) degree from the Institute of Radio Physics and Electronics, University of Calcutta, Calcutta, India, in 1956, and the Ph.D. degree from the Indian Institute of Technology (I.I.T.), Kharagpur, India, in 1967.

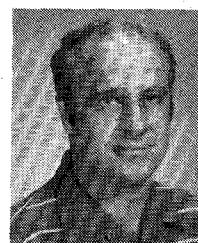
He joined the Department of Electronics and Electrical Communication Engineering, I.I.T., Kharagpur, in 1958. At present he is a Professor in the same department.

Dr. Das is a member of the Institute of Electrical Engineers, England. He is also a Fellow of Institution of Engineers (India).

**J. Brian Davies** (M'73) was born in Liverpool, England, on May 2, 1932. He received the B.A. degree in mathematics from Jesus College, Cambridge, England, in 1955, the M.Sc. degree in mathematics in 1957, and the Ph.D. degree in mathematical physics in 1960, both from the University of London, London, England.

From 1955 to 1963 he worked at the Mullard Research Laboratories, Salfords, Surrey, England, except for the period between 1958 and 1960 spent at University College, London. In 1963 he joined the staff of the Department of Electronic and Electrical Engineering, University of Sheffield, Sheffield, England. Since 1967 he has been on the staff at University College, London, where he is now Reader in Electrical Engineering. From 1971 to 1972 he was a visiting Scientist at the National Bureau of Standards, Boulder, CO. His work has been concerned with problems of electromagnetic field theory, and he is currently interested in computer methods for solving such problems.

Dr. Davies is a member of the Institution of Electrical Engineers (London).



**Gerald J. Dolan** was born in Philadelphia, Pennsylvania in 1945. He received the B.A. degree from the University of Pennsylvania, Philadelphia, PA, in 1967. In 1973, he received the Ph.D. in Physics from Cornell University, Ithaca, N.Y.

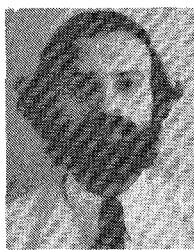
From 1973 to 1975 he served as a Research Associate and Visiting Assistant Professor in the Physics Department, SUNY at Stony Brook, Stony Brook, N.Y. He joined Bell Laboratories, Murray Hill, NJ, as a Postdoctoral Resident Visitor in 1976 and became a Member of Technical Staff in 1977.

Dr. Dolan is a member of Phi Beta Kappa and the American Physical Society.



**Philippe Gelin** was born in June 1, 1948, at St. Avold, France. He received the third degree in electronics from the Technical University of Lille, France, in 1976.

While being teaching assistant at the Technical University of Lille, he did research with the Propagation and Circuits group of the Microwave and Semiconductor Center, which is an university laboratory supported by the French National Center of Scientific Research (LA CNRS 287). He is presently a doctor in physic degree candidate and his thesis research will deal with open waveguide discontinuities and their role in the design of centimeter and millimeter wave components. In October 1980 he joined the French National Center of Scientific Research as a Research Associate and became responsible for the Propagation and Circuits group of the Microwave and Semiconductor Center.

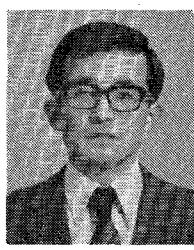


**Anand Gopinath** (S'64-M'65) received the degree of B.E. (electrical) from Madras University, India, in 1957 and the degree of M.Tech. from the Indian Institute of Kharagpur, West Bengal, India, in 1961. He received the degree of Ph.D. from University of Sheffield, England in 1965 and was awarded the degree of D.Eng. in 1978, by University of Sheffield.

He was Graduate Apprentice at the Metropolitan Vickers C., Manchester, England, from 1958 to 1960, Engineering Assistant at Jessop &

Co., Calcutta, India, from 1960 to 1962, and was Research Assistant at University of Sheffield, Sheffield, England, from 1965 to 1966. He was appointed Lecturer in Electronics at the University College of North Wales, Bangor, Wales, in 1966, and in 1978 became Reader in Electronics. He joined M.I.T. Lincoln Laboratory, Lexington, MA, in 1979.

Dr. Gopinath is a member of the Institution of Electrical Engineers (London), graduate member of the Institution of Mechanical Engineers (London), and a member of Sigma Xi.

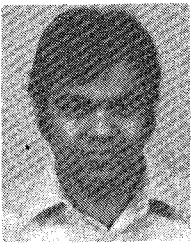


**Kunikatsu Kobayashi** was born in Yamagata, Japan, on December 22, 1943. He received the B. E. and M.E. degrees from Yamagata University, Yonezawa, Japan, in 1966 and 1971, respectively.

From 1971 to 1975, he has been a Research Associate with the Faculty of Engineering, Yamagata University, and in 1975 he became a Lecture at the same university. He has been engaged in research works in mixed lumped and distributed networks.

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

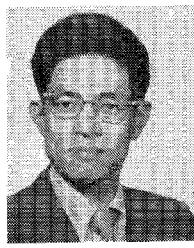
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**Inderjeet Gupta** was born in India on October 2, 1954. He received the B.Sc. degree in electrical engineering from Panjab University, India in 1975 and the M. Tech. degree in electrical engineering from Indian Institute of Technology, Kanpur, India, in 1977.

Currently, he is with the Electroscience Laboratory, Ohio State University, Columbus, as a Graduate Research Associate, and is working for the Ph.D. degree in electrical engineering. His research interest is in the application of electromagnetics and adaptive arrays.

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**Jin Au Kong** (S'65-M'68-SM'74) was born in Kiangsu, China, on December 27, 1942. He received the Ph.D. degree in 1968 from Syracuse University, Syracuse, NY, where he continued as postdoctoral research engineer.

Since 1969 he has been on the faculty of the Massachusetts Institute of Technology, Cambridge, MA, where he is Professor of Electrical Engineering. From 1969 to 1971 he was a Vinton Hayes Post-doctoral Fellow of Engineering. He has served as Consultant to the New York Port of Authority, the Lunar Science Institute, the Army Engineering Topographical laboratory, the Raytheon Company, MIT Lincoln Laboratory, and the United Nations Office of Technical Cooperation and Department of Technical Cooperation for Development. His research interest is in the area of electromagnetic wave propagation and radiation. He has published over 70 journal articles and 40 conference papers. He is the author of *Theory of Electromagnetic Waves* published by Wiley-Interscience (1975).

Dr. Kong is a member of the American Geophysical Union, the American Physical Union, the International Union of Radio Science, and the Optical Society of America.

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**Kozo Hatori** (M'67-SM'75) was born in Sapporo, Japan, on February 16, 1924. He received the B. Eng. and D. Eng. degrees both from Hokkaido University, Sapporo, Japan, in 1946 and 1961, respectively.

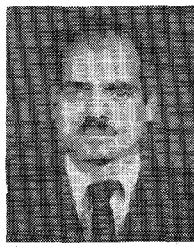
From 1946 to 1959 he was a Research Associate, from 1959 to 1964 he was an Associate Professor, and since 1964 he has been a Professor of the Research Institute of Applied Electricity, Hokkaido University, Sapporo, Japan. From 1963 to 1964 he was a Visiting Research Associate, Imperial College of Science and Technology, London. He has been engaged in research on distributed-constant networks and microwave circuits.

Dr. Hatori is a member of the Institute of Electronics and communication Engineers of Japan and the Institute of Electrical Engineers of Japan.

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**Max J. Lazarus** (M'71), photograph and biography not available at the time of publication.

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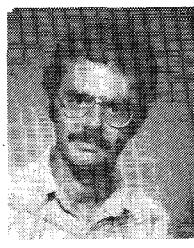


**K. K. Joshi** was born in Dhad, Maharashtra, India, on March 20, 1941. He received the B.E.Sc. degree in communication engineering and M.E. degree in microwave techniques from University of Jabalpur, India, in 1966 and 1969, respectively.

He joined the Department of Electrical Engineering, V. R. College of Engineering, Nagpur, India, in 1969. He worked in the Department of Electronics and Electrical Communication Engineering of Indian Institute of

Technology, Kharagpur, as a sponsored candidate for the Ph.D. degree during the period August, 1977 to August, 1980.

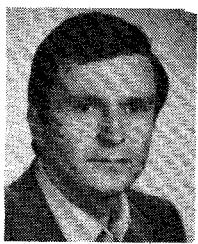
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**Richard A. Linke** was born in Plainfield, NJ, on February 15, 1946. He received the B.A., M.A., and Ph.D. degrees from the Department of Physics, Columbia University in 1968, 1970, and 1972, respectively. His experimental astrophysics thesis work involved the measurement of the X-ray polarization of the Crab Nebula.

In 1972 he joined the Radio Physics Research Department of Bell Telephone Laboratories, Crawford Hill, NJ, where he developed low-noise millimeter wave receivers for astronomical observations. He has made cryogenic receivers for the Bell Laboratories millimeter wave antenna at Holmdel, NJ, and has conducted studies of interstellar molecular gas in our galaxy as well as in external galaxies.

Dr. Linke is a member of the American Astronomical Society and the International Astronomical Union.



**Alessandro Lipparini** was born in Bologna, Italy, on August 31, 1947. He graduated with a degree in electronic engineering from the University of Bologna, Bologna, Italy, in 1974.

In 1974 he joined the Technical Staff of the Istituto di Elettronica, University of Bologna, Pontecchio Marconi, Italy, where he is currently involved in research in the field of microwave integrated circuits. Since March 1975 he has been a Researcher for the Italian Ministry of Education at the University of Bologna, where

he has also served as a Lecturer on Circuit Theory.

Mr. Lipparini was awarded the G. Marconi Prize for Scientific Research in 1974.

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**Nobushiro Miki** (S'68-M'74) was born in Kawaguchi, Japan, on October 14, 1945. He received the B. Eng. degree from Tokyo Denki University, Tokyo, in 1968, the M.S. and Ph.D. degrees in electronics both from Hokkaido University, Sapporo, Japan, in 1970 and 1974, respectively.

From 1974 to 1975 he was a Research Associate, Simulation Center, Hokkaido University. Since 1975 he has been a Research Associate, the Research Institute of Applied Electricity, Hokkaido University. He is engaged in research on time domain analysis of systems and digital processing of speech signals.

Dr. Miki is a member of the Institute of Electronics and Communication Engineers of Japan.

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**D. Mirshekar-Syahkal** was born in Tehran, Iran, in 1951. From Tehran University, Tehran, Iran, he received the B.Sc. degree in electrical engineering in 1974, and from University College London, London, England, he received the M.Sc. degree in microwaves and modern optics in 1975 and the Ph.D. degree in electrical engineering in 1979. He is currently involved in the analysis of planar transmission lines implemented in MIC at the millimetric band at University College London.

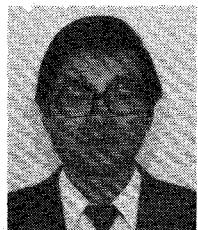
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**Nobuo Nagai** (M'74) was born in Tokyo, Japan, on January 5, 1938. He received the B.S. and Dr. Eng. degrees from Hokkaido University, Sapporo, Hokkaido, Japan, in 1961 and 1971, respectively.

He is currently a Professor with the Research Institute of Applied Electricity, Hokkaido University. He has been engaged in research on distributed networks. He was with Cornell University, Ithaca, NY, as a Visiting Research Associate in 1972.

Dr. Nagai is a member of the Institute of Electronics and Communications Engineers of Japan.

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**Yoshiaki Nemoto** (S'72-M'73) was born in Sendai City, Miyagiken, Japan, on December 2, 1945. He received the B.E., M.E., and Ph.D. degrees from Tohoku University, Sendai, Japan, in 1968, 1970, and 1973, respectively.

Since 1973, he has been a Research Associate with the Faculty of Engineering, Tohoku University. He has been engaged in research works in the distributed networks and computer networks using the satellite.

Dr. Nemoto is a member of the Institute of Electronics and Communication Engineers of Japan.

**F. R. Pantoja**, photograph and biography not available at the time of publication.

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**Alakananda Paul** (SM'73-M'75) was born on January 14, 1941 in Calcutta, India. She obtained the B.Tech.E. degree with Honours in 1961, from Jadavpur University, Calcutta; the M.E. degree in electrical communication engineering with Distinction in 1963, from Indian Institute of Science, Bangalore; and the Ph.D. degree in electrical engineering in 1974, from University of Rhode Island, Kingston.

During 1963-1965, she worked as a Senior Research fellow in electrical communication engineering, Indian Institute of Science, Bangalore. From 1965 to 1969 she was a lecturer in electronics and communication engineering at University of Roorkee, India. From 1969 to 1974 she was teaching assistant at University of Rhode Island. From 1974 to 1976, she was a member of technical staff at COMSAT Laboratories, Maryland. In 1976, she joined Electrical Engineering Department, Indian Institute of Technology (IIT), Kanpur, as Assistant Professor. She is currently on leave from IIT, Kanpur, and has been a visiting Assistant Professor of Electrical Engineering at Northeastern University, Boston, MA since 1979. Her research interests include various areas of Electromagnetics, especially ELF propagation, subsurface communication, antennas, microwave circuits, and optical waveguides.

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**Michel Petenzi** was born on November 27, 1953 in Sannois, France. He received the degree of engineer from the Institut Industriel du Nord, Lille, France in 1977.

He did research with the Propagation and Circuits group of the Microwave and Semiconductor Center, which is supported by the French National Center of Scientific Research (LA CNRS 287). He is presently a third degree in electronics candidate and his thesis research deals with open waveguide discontinuities.

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**T. G. Phillips** received the D. Phil. degree from Oxford University in 1964.

He was with Stanford University, Stanford, CA, from 1965 to 1966, Clarendon Lab Oxford from 1966 to 1968, the Physics Research Laboratory of Bell Laboratories from 1968 to 1974 and from 1975 to 1980, and Queen Mary College, London University from 1974 to 1975. He is currently a Professor of Physics at California Institute of Technology, Pasadena, CA. His recent interests include millimeter and sub-millimeter detectors for astronomy.



**Soon Yun Poh** was born in Penang, Malaysia, on June 10, 1958. He received the S.B. degree in electrical engineering in 1980 from Massachusetts Institute of Technology, Cambridge, MA. He is currently a graduate student in the Department of Electrical Engineering and Computer Science at MIT. His research interests are in electromagnetic wave propagation and microstrip antennas.

Mr. Poh is a member of Tau Beta Pi and Eta Kappa Nu.

**Iwata Sakagami** was born in Aomori, Japan, on June 6, 1948. He received the B.S., M.S., and Ph.D. degrees in electronic engineering from Hokkaido University, in 1972, 1977, and 1980, respectively.

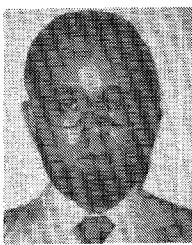
From 1972 to 1974 he was with the Communication Equipment Works, Mitsubishi Electric Corp., Amagasaki-shi, Japan, where he was engaged in the development and design in microwave circuits and television signal repeater system. He is presently a Postdoctoral Fellow of the Japan Society for the Promotion of Science.

Dr. Sakagami is a member of the Institute of Electronics and Communication Engineers of Japan.

**J. S. Rao** was born in Vijayawada, India, on July 29, 1950. He received the B.E. degree in electronics and communication engineering from Andhra University, Waltair, India, in 1972.

He was with the Thermal Power Station, Paloncha, Andhra Pradesh, India, from 1973 to 1974. In 1974 he joined the Indian Institute of Technology, Kharagpur, where he was engaged in research in the field of microwave engineering until 1980. Since July 1980, he is with the faculty of Electrical Engineering, Regional Engineering

College, Warangal, India.



**Gordon P. Riblet** (M'73) was born in Boston, MA, on December 12, 1943. He received the M.S. and Ph.D. degrees in physics from the University of Pennsylvania, Philadelphia, PA, in 1966 and 1970, respectively.

From 1970 to 1972 he was employed as a Research Scientist at the University of Cologne, Cologne, Germany, performing research in solid-state physics. Since 1972 he has been employed as a Research Scientist at the Microwave Development Laboratories, Natick, MA, working in the areas of ferrite devices and computerized test measurements.



**Risaburo Sato** (SM'62-F'77) was born in Furukawa City, Miyagiken, Japan, on September 23, 1921. He received the B.E. and the Ph.D. degrees from Tohoku University, Sendai, Japan in 1944 and 1952, respectively.

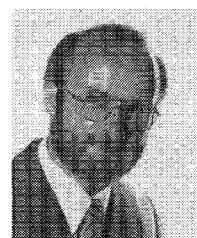
From 1949 to 1961, he was an Assistant Professor at Tohoku University, and in 1961 he became a Professor in the Department of Electrical Communications at the same university. Since 1973 he has been a Professor in the Department of Information Science, at Tohoku University. From 1969 to 1970, he was an International Research Fellow at Stanford Research Institute, Menlo Park, CA. His research activities include studies of multiconductor transmission systems, distributed transmission circuits, antennas, communication systems, active transmission lines, magnetic and ferroelectric recording, neural information processing, computer networks, and electromagnetic compatibility. He has published a number of technical papers and some books in these fields, including *Transmission Circuit*.

Dr. Sato was Vice President of the Institute of Electronic and Communication Engineers of Japan from 1974 to 1976. He has been Radio Technical Council Commissioner of the Ministry of the Post and Telecommunications of Japan since 1974, a member of the Telecommunication Technology Consultative Committee at NTT since 1976, and a member of Science Council of Japan since 1978. He is also a member of the Institute of Electronics and Communication Engineers of Japan, the Institute of Electrical Engineers of Japan, the Institute of Television Engineers of Japan, and Information Processing Society of Japan.



**Vittorio Rizzoli** (M'79) was born in Bologna, Italy, in 1949. He graduated from the School of Engineering, University of Bologna, Bologna, Italy, in 1971.

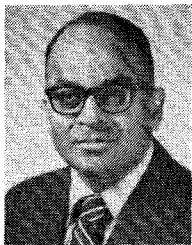
From 1971 to 1973 he was with Centro Onde Millimetriche of Fondazione Ugo Bordoni, Pontecchio Marconi, Italy, where he worked in the area of microwave integrated circuits. In 1973 he spent six months with the Hewlett-Packard Company, Palo Alto, CA, working in the field of microwave power devices. Since 1974 he has been an Associated Professor at the University of Bologna, where he is now teaching a course on Microwave Integrated Circuits. In 1980 he has joined the University of Bologna as a full professor.



**Gisbert Saulich** (A'76) was born in Mährisch-Rothwasser, Germany, on December 22, 1942. He received the Ing. (grad.) degree in electrical engineering from the Ingenieurschule, Giessen, Germany, the Dipl.-Ing. degree from the Technische Hochschule, Darmstadt, Germany, and the Dr.-Ing. degree from the Universität, Bremen, Germany, in 1964, 1970, and 1977, respectively.

From 1970 to 1976 he was a Research Assistant at the Institute für allgemeine und theoretische Elektrotechnik of the Ruhr-Universität, Bochum, Germany, where he has worked in the area of microwave filters and electromagnetic theory. In 1977, he joined the Deutsche Forschungs- und Versuchsanstalt für Luft- und Raumfahrt (DFVLR) in Köln, Germany, as a Project Engineer in a support group, where his main function is to provide project support on all system and circuit aspects of satellite payloads, respectively, microwave hardware, amplifiers, filters, antennas, and fiber optics. He is a holder of some patents.

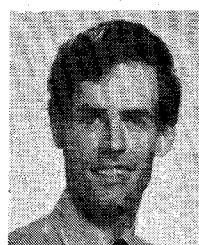
Dr. Saulich is a member of the NTG and the VDE.



**S. R. Seshadri** (SM'61) was born in Madras, India, on October 25, 1928. He received the B.Sc. (Honors) and M.A. degrees in physics at Madras University, India, in 1950 and 1951, respectively, the Diploma (D.I.I.Sc.) in electrical communication engineering at the Indian Institute of Science, Bangalore, India in 1953, and the Ph.D. degree in applied physics at Harvard University, Cambridge, MA, in 1959.

He is a Professor in the Department of Electrical and Computer Engineering, The University of Wisconsin, Madison since 1967. Among other activities, he has served as Principle Scientific Officer at the Electronics Research and Development Establishment, Bangalore, India, as Senior Engineering Specialist at the Sylvania Applied Research Laboratory, Waltham, MA, as Visiting Professor at the University of Toronto, Toronto, Canada, as a National Science Foundation Senior Postdoctoral Fellow at the California Institute of Technology, Pasadena, and as Postdoctoral and Honorary Research Fellow at the Gordon McKay Laboratory of Harvard University. He has conducted research in electromagnetic scattering and diffraction, surface waves, wave propagation in the ionosphere, waves, instabilities, and radiation in plasmas, nonlinear waves, waves and instabilities in periodic media, microsonics, and magnetics.

Dr. Seshadri is a member of the American Physical Society, the Optical Society of America, and Commissions B and H of the International Union of Radio Science. He is the author of *Fundamentals of Transmission Lines and Electromagnetic Fields*, and *Fundamentals of Plasma Physics*.



**David S. Stone** was born in Boston, MA in 1952. After receiving the B.A. degree in physics from Middlebury College, Middlebury, VT, in 1974, he attended Massachusetts Institute of Technology, Cambridge, MA, where he received the Ph.D. degree in physics in 1979. While in graduate school, he specialized in the field of experimental plasma physics at the M.I.T. Research Laboratory of Electronics. His studies covered such topics as tokamak design and engineering, plasma diagnostics and instrumentation, and observation of plasma cyclotron emission.

In 1979, he joined the Palo Alto Microwave Tube Division of Varian Associates, Palo Alto, CA, where he is a Design Engineer in the 60 GHz Gyrotron Development Program, funded by the U.S. Department of Energy.

Dr. Stone is a member of Phi Beta Kappa, Sigma Xi, and the Plasma Physics Division of the American Physical Society.



**T. C. L. Gerhard Sollner** received the Ph.D. degree in physics from the University of Colorado in 1974.

After receiving the degree he developed sub-millimeter instrumentation for astronomy at Queen Mary College, London University. From 1977 to 1979 he worked as a Faculty Research Associate at the Five College Radio Astronomy Observatory. He is presently an Assistant Professor in the Department of Electrical and Computer Engineering, the University of Massachusetts, Amherst, MA, and is associated with the Five College Radio Astronomy Observatory. His interests include observation of interstellar molecules from space platforms as well as quantum mixing and ultra-low noise receivers.



**Ming-Chi Tsai** (S'79) was born in Chia-Yi, Taiwan, on September 19, 1948. He received the B.S. degree in physics from National Cheng Kung University, Tainan, Taiwan, and M.S. degree in Electrical Engineering from the University of Texas at Arlington in 1971 and 1976, respectively. Currently, he is working toward the Ph.D. degree at the University of Wisconsin, Madison.

His research activities have been concerned with the magnetic wave propagation in periodic

YIG films.

Mr. Tsai is a student member of the Audio Engineering Society. As an amateur violinist, he is also active in the University Symphony Orchestra.



**M. G. Somekh**, photograph and biography not available at the time of publication.



**David P. Woody** received the Ph.D. degree in physics from the University of California at Berkeley in 1975 where he measured the spectrum of the Cosmic Microwave Background Radiation at near-millimeter wavelengths.

He is presently a Senior Scientist in the Department of Physics at California Institute of Technology, Pasadena and is developing cooled receivers for use in the Owens Valley Radio Observatory millimeter interferometer.