

# Contributors



**Colin S. Aitchison** was born in Morecombe, England, in 1933. He received the B.Sc. and ARCS degrees in physics from Imperial College, London, in 1955.

He worked for Mullard Research Laboratories, Redhill, Surrey, from 1955 to 1972, being initially concerned with the noise reduction properties of direct injection phase locked klystrons for use with Doppler radars. He led a group concerned with parametric amplifiers, mixers, ferrite limiters, lumped microwave components, and Gunn and avalanche oscillators. In 1972, he joined the Department of Electronics, Chelsea College, University of London, London, England, where he is a Reader in Electronics. His research interests remain in the same field.

Mr. Aitchison is a Fellow of the Institution of Electrical Engineering and a Member of the Institute of Physics.

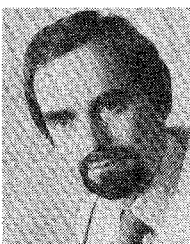


**Amarjit S. Bains** was born in Nangal Kalan, India. He received the B.Sc. and M.Sc. degrees from the University of London, in 1968 and 1970, respectively. He is currently completing the Ph.D. degree at Chelsea College, University of London.

In 1970, he joined Microwave Associates, Dunstable, U.K., where he worked in research and development of microwave varactor multipliers, multiplier-upconverters, and IMPATT amplifiers and oscillators. From 1973 to 1975, he

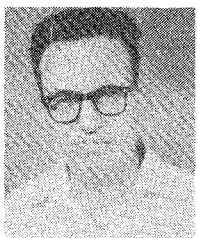
was with G & E Bradley.

Mr. Bains is a member of the Institution of Electrical Engineers.



**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, Germany, in 1972.

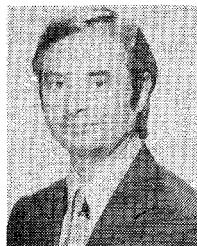
Since 1973, he has been a Scientific Assistant at the Ruhr-Universität, Bochum, Germany, working toward the doctorate degree and carrying out research on semiconductor devices and circuitry for the gigabit per second range.



**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, Kharagpur, India, in 1967.

He joined the Department of Electronics and Electrical Communication Engineering of the Indian Institute of Technology in 1958. At present he holds the position of Professor in the same department.

Dr. Das is a member of the Institute of Electrical Engineers, U.K. He is a Fellow of the Institution of Engineers, India.



**Bernard Glance** (M'72) received the Engineer degree in electronics from Ecole Spéciale de Mécanique et Electricité, Paris, France, in 1958, the Engineer degree in electronics from Ecole Supérieure d'Electricité, Paris, in 1960, and the Doctor Engineer degree from Paris University, in 1964.

From 1958 to 1966, he was engaged in research on microwave and millimeter-wave tubes at CSF, France. He worked on microwave tube amplifiers from 1966 to 1968 at Varian Associates. After joining Bell Telephone Laboratories in 1968, his main field of interest was in millimeter-wave integrated circuit and RF sources. He is presently involved with microwave integrated components for satellite radio systems.



**Charles T. Hast** (S'67-M'72) was born in Sunbury, PA, in December 1946. He received the B.S. degree in electrical engineering from the Pennsylvania State University, University Park, in 1968, the M.S. degree in electrical engineering from Texas Arts and Industry University, Kingsville, in 1972, and the M.S. degree in industrial administration from the University of Dallas, Dallas, TX, in 1976.

Upon completion of a tour as an officer in the U.S. Navy, he joined the Bendix Aerospace Systems Division, in 1972, and Texas Instruments, in 1973. Since 1976, he has been a Senior Antenna Design Engineer at the American Electronic Laboratories, Lansdale, PA, where he has been engaged in the development of various antennas and antenna systems.



**Asamitsu Higashisaka** was born in Japan, on June 20, 1944. He received the B.S. and M.E. degrees from Hiroshima University, Hiroshima, Japan, in 1967 and 1969, respectively.

He joined Central Research Laboratories, Nippon Electric Company, Ltd., Kawasaki, Japan, in 1969. He has worked in research and development of planar-type Gunn diodes and is now engaged in the design, fabrication, and characterization of GaAs power FET's.

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



**Kazuhiko Honjo** was born in Saitama, Japan, on October 28, 1951. He received the B.E. degree from the University of Electrocommunications, Tokyo, Japan, and the M.E. degree from the Tokyo Institute of Technology, Tokyo, Japan, both in electrical engineering, in 1974 and 1976, respectively.

From 1974 to 1976, he was engaged in the research of TRAPATT oscillators in the Tokyo Institute of Technology. He joined the Central Research Laboratories, Nippon Electric Company, Ltd., Kawasaki, Japan, in 1976. Since 1976, he has been engaged in the research and development of GaAs FET amplifiers.

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



**Chia-lun J. Hu** received the B.S.E.E. degree from the National Taiwan University, Taipei, in 1958, the M.S.E.E. degree from the National Chiao-Tung University, Hsinchu, Taiwan, in 1960, and the Ph.D. degree from the University of Colorado, Boulder, in 1966.

From 1960 to 1963, he was an Engineer at the Broadcasting Corporation of China and, subsequently, an Instructor at the Chiao-Tung Graduate School. In 1963, he received a NASA-Chinese Government Scholarship to pursue his doctoral studies at the University of Colorado, Boulder. Since 1966, he has assumed various research and teaching positions at the University of Colorado, the Jet Propulsion Laboratory, and the Chiao-Tung University. He is currently a Professor at the Electrical Engineering Department, University of Colorado. His research interests include electro-optics, bioengineering, air pollutant detections, and microwave retortion of oil shale. Twenty-nine papers were published by him in these four fields. He has been either a principal or a copincipal investigator under five government grants supporting his research in these fields.

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**John H. Jacobi** (M'77) was born in Houston, TX, on August 24, 1937. He received the B.S. degree from Rose-Hulman Institute of Technology, Terre Haute, IN, in 1959, and the M.S. degree from the University of Maryland, College Park, MD, in 1969.

He has worked at Collins Radio Company, Ling-Temco-Vought, and NASA Goddard Space Flight Center as a specialist in radio frequency circuit and system design. From 1969 to 1974, he worked for Hewlett-Packard in the

field of computer-aided data acquisition and control. In 1974, he joined the Walter Reed Army Institute of Research, Washington, DC, where he is currently engaged in research on biological effects of electromagnetic radiation.

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**Kenneth L. Kotzebue** (S'56-M'59) was born in San Antonio, TX, on December 4, 1933. He received the B.S. degree in mechanical engineering from the University of Texas, Austin, in 1954, the M.S. degree in engineering from the University of California, Los Angeles, in 1956, and the Ph.D. degree in electrical engineering from Stanford University, Stanford, CA, in 1959.

From 1954 to 1964, he was associated with Hughes Aircraft Company, Texas Instruments, Incorporated, and Watkins Johnson Company. Since 1964, he has been a member of the faculty of the University of California, Santa Barbara, where he is currently Professor of Electrical Engineering and Computer Science. His current research interests are in the area of microwave solid-state electronics.

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

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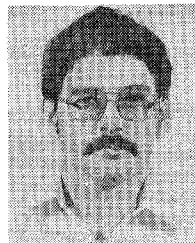


**Lawrence E. Larsen** was born in Denver, CO, in 1943. He attended the University of Colorado College of Arts & Sciences, Boulder, then attended the School of Medicine graduating in 1968 with an M.D. (magna cum laude). This was followed by a two-year NIH Postdoctoral Fellowship at the Brain Research Institute, University of California, Los Angeles, in bio-mathematics.

He then entered active duty as a Research Physiologist in the U.S. Army at Walter Reed

Army Institute of Research, Department of Microwave Research, Washington, DC, from 1970 to 1973. He then accepted an appointment as Assistant Professor of Physiology and Computer Science at Baylor College of Medicine in Houston, TX. He returned to Walter Reed in 1975 as Associate Chief for Biophysics, Department of Microwave Research, and became Chief, Department of Microwave Research, in 1977. He is presently serving as Lieutenant Colonel, Medical Corps, U.S. Army Medical Research & Development Command.

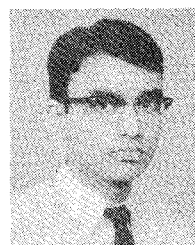
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**Richard L. Magin** (S'72-M'76) was born in Providence, RI, on September 30, 1946. He received the B.S. and M.S. degrees in physics from the Georgia Institute of Technology, Atlanta, in 1969 and 1972, respectively. He received the Ph.D. degree in biophysics from the University of Rochester, Rochester, NY, in 1976.

From 1969 to 1972, he was employed as an Assistant Research Engineer in the Radar Branch of the Engineering Experiment Station, Georgia Institute of Technology, where he was engaged in the analysis of radar signals and the development of microwave sources for biological experimentation. Since 1976, he has been employed as an Associate in the Department of Radiation Biology and Biophysics, University of Rochester, and assigned through an Inter-governmental Personnel Agreement to the Laboratory of Chemical Pharmacology, Developmental Therapeutics Program, Division of Cancer Treatment, National Cancer Institute, Bethesda, MD. His current interests are in the areas of the biological effects of microwave radiation, the use of hyperthermia as an adjuvant to cancer therapy, and the improvement of temperature measurements in biological systems.

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**V. M. Pandharipande** was born in Chhapara, Madhya Pradesh, India, on March 28, 1949. He received the B.E. degree in electrical engineering from Nagpur University, Nagpur, India, and the M. Tech. degree in microwaves and radar engineering from Indian Institute of Technology, Kharagpur, in 1970 and 1972, respectively.

From 1972 to 1974, he was a Scientific Officer at Tata Institute of Fundamental Research, Bombay, India. In 1974, he joined Radar and Communication Centre, Indian Institute of Technology, Kharagpur, as a Lecturer where he is also working towards the Ph.D. degree.

Mr. Pandharipande is a graduate member of Institution of Electronics and Telecommunications Engineers, India.

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**John P. Quine** (S'48-A'53-M'59) received the B.E.E., M.E.E., and Ph.D. degrees in electrical engineering from Rensselaer Polytechnic Institute, in 1949, 1952, and 1966, respectively.

He was a Research Associate and Assistant Professor in the Electrical Engineering Department at Rensselaer from 1949 to 1955. In 1955, he joined General Engineering Laboratory of the General Electric Company in Schenectady, NY (now part of the General Electric Research and Development Center). In the past, he has

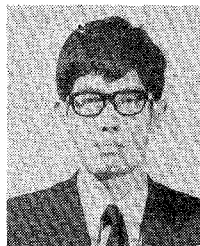
worked in the areas of microwave circuits and antennas, making significant contributions in the area of electromagnetic shielding, in the development of high-power oversize waveguide components, and in the analysis of phased array antennas. In more recent years, he has been involved with the development of microwave solid-state power sources and power combining techniques.

Dr. Quine is a member of Sigma Xi.



**Klaus Solbach** was born in 1951 in Witten/West, Germany. He received the Dipl. Ing. degree from the Technical University of Aachen, Aachen, Germany, in 1974.

Since 1975, he has been employed at the University of Duisburg, Duisburg, Germany as a Research Assistant. He is engaged in investigations of the properties, production techniques, and practical applications of the dielectric image line.



**Yoichiro Takayama** was born in Kanagawa, Japan, on January 3, 1942. He received the B.E., M.E., and Dr. Eng. degrees from Osaka University, Osaka, Japan, in 1965, 1967, and 1973, respectively.

He joined the Nippon Electric Company, Ltd., Kawasaki, Japan, in 1967, and is now Supervisor of the Electron Device Research Laboratory, Central Research Laboratories. He has been engaged in the research and development of microwave solid-state oscillators,

amplifiers, modulators and sensors and is presently concerned with microwave GaAs FET applications.

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



**Frederick J. Tischer** (SM'55-F'62) was born in Plan, Austria, on March 14, 1913. He received the Ph.D. degree from the University of Prague, Czechoslovakia, and did advanced study at the University of Berlin, Germany, in 1938, and at Princeton, NJ, in 1962.

He is at present Visiting Distinguished Professor at the Naval Postgraduate School, Monterey, CA, on leave from North Carolina State University, Raleigh, where he has taught since 1964. He previously taught at the University of Alabama and served as Assistant Director of the University of Alabama at Huntsville Research Institute. Before, he spent 6 years at Ohio State University, Columbus. He is the author of *Microwave*

*Measurements and Basic Theory of Space Communications* and of numerous articles in Electromagnetics, Microwaves, and Communications. He invented the traveling-wave resonator, the *H*-guide, groove guide, and fence guide.

Dr. Tischer is a member of Sigma Xi and Tau Beta Pi.

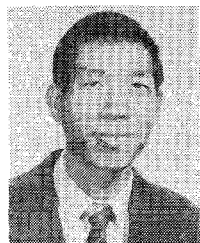


**Robert J. Trew** (S'71-M'74) was born in Saginaw, MI, on December 8, 1944. He received the B.E.E. degree from General Motors Institute, Flint, MI, in 1968, and the M.S.E. and Ph.D. degrees from the University of Michigan, Ann Arbor, MI, in 1969 and 1975, respectively.

From 1971 to 1974, he was with the Electron Physics Laboratory of the University of Michigan where he was involved in research on IMPATT- and TRAPATT-mode oscillators and amplifiers. From 1975 to 1977, he was engaged in the

design and development of various types of solid-state microwave sources and amplifiers while employed by the Watkins-Johnson Company, Palo Alto, CA. Currently, he is an Assistant Professor in the Department of Electrical Engineering of North Carolina State University, Raleigh, NC, and a consultant to the U.S. Army and to the Research Triangle Institute, Research Triangle Park, NC. His interests are in the area of microwave and millimeter-wave materials, devices, and circuits.

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



**Joseph S. Wong** (M'68) was born on August 28, 1941, in Sarawak, Malaysia. He received the B.E. degree in electrical engineering from Vanderbilt University, Nashville, TN, in 1966, and the M.S.E. degree from the University of Alabama, Huntsville, AL, in 1968. He has done post graduate studies at New Jersey Institute of Technology.

From 1968 to 1976, he has worked consecutively at Narda, the Harris Corporation (PRD Division) and the Engelmann Microwave Company,

engaged in the design and development of microwave passive and solid-state devices and RF subsystems. He joined the International Telephone and Telegraph Corporation in 1976, as a Member of the Technical Staff of the Avionics Division, Nutley, NJ. His current work is devoted to a variety of RF components and subsystems development.

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