

Contributors

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

He worked for Mullard Research Laboratories, Redhill, Surrey, England, 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 electronics Department of Chelsea College, University of London, England, where he is Reader in Electronics. His research interests remain in the same field.

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



I. J. Bahl was born in Sham Chaurasi, Punjab, India, on January 27, 1944. He received the M.Sc. degree in physics and M.Sc. (Tech.) in electronics from the Birla Institute of Technology and Science, Pilani, India, in 1967 and 1969, respectively. In 1975, he received Ph.D. degree in electrical engineering from the Indian Institute of Technology, (IIT) Kanpur, India.

From 1969 to 1970, he worked in Tropo Scatter Communication Project, in the Department of Electrical Engineering at IIT. From 1971 to 1974, he was Senior Research Assistant in the same department. From 1974 to 1978 he was with the Advanced Centre for Electronic Systems, IIT, Kanpur as a Research Engineer, where he was engaged in research on p-i-n diode phase shifters, microwave integrated circuits, printed antennas, phased-array radar, and industrial applications of microwaves. In January 1979, he joined the Department of Electrical Engineering, University of Ottawa, Ont., Canada, as a Post-Doctoral Fellow, where he is presently Research Associate. He is now working on microwaves in biological systems, microwave and millimeter-wave integrated circuits, and millimeter-wave antennas. He has coauthored the book *Microstrip Lines and Slotlines* (Dedham, Artech House, 1979).



Charles A. Cain (S'65-M'71) was born in Tampa, FL, on March 3, 1943. He received the B.E.E. degree (with highest honors) from the University of Florida, Gainesville, in 1965, the M.S.E.E. degree from Massachusetts Institute of Technology, Cambridge, in 1966, and the Ph.D. degree in electrical engineering from The University of Michigan, Ann Arbor, in 1972.

During 1965-1968 he was a Member of the Technical Staff at Bell Telephone Laboratories, Incorporated, Naperville, IL, where he worked

in the electronic switching systems development area. Since 1972, he has been with the Department of Electrical Engineering, University of Illinois Urbana-Champaign, where he is currently an Associate Professor. He has been involved with research on the biological effects and medical applications of nonionizing electromagnetic radiation.



Ray-Sun Chang (S'75-M'77) was born in Canton, China, on August 3, 1948. He received the B.S.E.E. degree from Cheng Kung University, Taiwan, in 1971, and the M.S.E.E. degree from University of Mississippi, University, in 1975.

He is currently working at Texas Instruments, Incorporated, Stafford, TX, where he is engaged in circuit design.



Adrian G. Chapman was born at Northwood, England, in 1946. He served a five-year engineering apprenticeship followed by a further five years in the electronics and computer industry before going to Chelsea College, University of London, England, where he was awarded the B.Sc. in electronics in 1975 and his Ph.D. in 1978.

He is currently at the Royal Signals and Radar Establishment, Malvern, England.



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

His research interest has been in the area of microwave and dipole interference over stratified medium. He is currently in the doctoral program at M.I.T. and works as a Teaching Assistant and a Research Assistant with the M.I.T. Research Laboratory of Electronics. His present research interest lies in mixed boundary value problems. He has worked during the Summers of 1978 and 1979 at Schlumberger-Doll Research Center on the theoretical investigation of well-logging tools.

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



David A. Hill (M'72-SM'76) was born in Cleveland, OH, on April 21, 1942. He received the B.S.E.E. and M.S.E.E. degrees from Ohio University, Athens, in 1964 and 1966, respectively, and the Ph.D. degree in electrical engineering from Ohio State University, Columbus, in 1970.

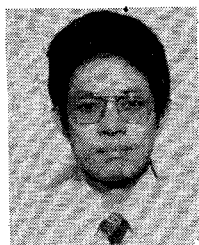
From 1970 to 1971 he was a Visiting Fellow with the Cooperative Institute for Research in Environmental Sciences. Since 1971 he has been with the Institute for Telecommunication

Sciences in the National Telecommunications and Information Administration, Boulder, CO. His research activities have been in pulse propagation, guided waves, and antenna and scattering problems.

Dr. Hill is a member of Eta Kappu Nu, Tau Beta Pi, Sigma Xi, and URSI Commissions B and F.



P. Katechi, photograph and biography not available at the time of publication.

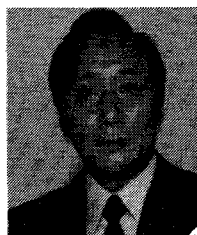


Jin Au Kong was born in Kiangsu, China, on 27 December 1942. He received the B.S. degree from the National Taiwan University, Taipei, Taiwan, in 1962, and the M.S. degree from the National Chiao Tung University, Hsinchu, Taiwan, in 1965. He came to the United States in 1965 and in 1968 obtained the Ph.D. degree from Syracuse University, Syracuse, New York, where he continued as a Postdoctoral Research Engineer.

Since 1969 he has been on the faculty of the Massachusetts Institute of Technology, Cambridge, where he is now Associate Professor of Electrical Engineering. From 1969 to 1971, he was also Vinton Hayes Postdoctoral Fellow of Engineering at M.I.T. During the Summers of 1971 and 1972 he was visiting Scientist at the Lunar Scientist Science Institute in Houston, TX. He has served as Consultant to the New York Port of Authority on TV interference (1971), to Lunar Science Institute of its advisory committee (1972), to the Raytheon Company on antennas in dissipative media, to the Army Engineering Topographical Laboratory on radar backscattering from earth terrain, and to the United Nations on remote sensing technology. His research interest is in the area of Electromagnetic wave propagation and radiation. He is the author of *Theory of Electromagnetic Waves* (Wiley-Interscience, 1975).

Dr. Kong is a member of the American Physical Society, the International Union of Radio Science, the New York Academy of Science, the Optical Society of America, and Sigma Xi.

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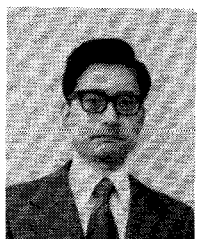
Nobuaki Kumagai (M'59-SM'72) was born in Ryojun, Japan, on May 19, 1929. He received the B.Eng. and D.Eng. degrees from Osaka University, Osaka, Japan, in 1953 and 1959, respectively.

From 1958 to 1960 he was a Visiting Senior Research Fellow at the Electronics Research Laboratory of the University of California, Berkeley, where he was engaged in research on electromagnetic wave scattering and parametric amplifiers. From 1960 to 1970, he was an

Associate Professor of Communication Engineering at Osaka University. Since 1971, he has been a Professor of Communication Engineering at Osaka University, Osaka, Japan, where he is engaged in research and education in electromagnetic theory, microwave and millimeter-wave engineering, optical waveguides and devices, and lasers and their applications. He is the coauthor of *Microwave Circuits* (OHM-sha, Tokyo, 1963) and *Introduction to Relativistic Electromagnetic Field Theory* (Corona Publishing Company, Tokyo, 1971).

Dr. Kumagai is a member of the Institute of Electronics and Communication Engineers of Japan, the Institute of Electrical Engineers of Japan, the Japan Society of Applied Physics, and the Physical Society of Japan.

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Nagayoshi Morita (M'67) was born in Toyama, Japan, on March 28, 1942. He received B.S., M.S., and Ph.D. degrees in engineering from Osaka University, Suita-shi, Japan, in 1964, 1966, and 1977, respectively.

Since 1966, he has been with the Department of Communication Engineering, Osaka University, Suita-shi, Japan, where he has been engaged in research work on millimeter waveguide, scattering and diffraction of electromagnetic waves, computer techniques for electromagnetic

problems, optical waveguides, etc.

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

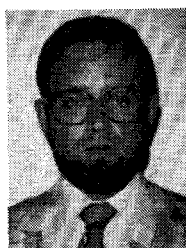


Dean F. Peterson (S'70-M'71) was born in Melbourne, FL, on March 28, 1945. He received the B.S. degree in electrical engineering from Utah State University, Logan, in 1967, and the M.S. and Ph.D. degrees from the Massachusetts Institute of Technology, Cambridge, in 1969 and 1971, respectively.

From 1971 to 1977 he was a staff member in the Satellite Communications Group at the Massachusetts Institute of Technology, Lincoln Laboratory, and was actively involved in the development of Lincoln Experimental Satellites (LES 8/9). He is currently an Assistant Professor in the Department of Electrical and Computer Engineering, Electron Physics Laboratory, The University of Michigan, Ann Arbor. His present research activities involve microwave solid-state devices and circuits.

Dr. Peterson is a member of Sigma Xi.

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

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Tullio E. Rozzi (M'66-SM'74) was born in Italy in September of 1941. He received the degree of "dottore" in physics from the University of Pisa, Pisa, Italy, in 1965, and the Ph.D. degree in electronic engineering from Leeds University, England, in 1968.

From 1968 to 1978, he was a Research Scientist at the Philips Research Laboratories, Eindhoven, The Netherlands, where he worked in various areas of circuit and waveguide field theory, in particular, waveguide discontinuities.

In 1975, he spent a year at the Electromagnetics Laboratory, Department of Electrical Engineering, University of Illinois, Urbana. Since October 1978, he has held a Chair in the Department of Electrical Engineering and Electronics at the University of Liverpool, Liverpool, England. At present, his interests lie in the propagation and scattering of waves in passive and active planar dielectric waveguides for optical communications and millimeter wave application.

Prof. Rozzi was awarded the IEEE Microwave Prize in 1975.

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Sidhartha K. Sinha was born in Patna, India, on September 14, 1940. He received the B.Sc. engineering degree from Bihar Institute of Technology, India, in 1963, and the M.S. degree in electrical engineering from Howard University, Washington, DC, in 1975.

From 1964 to 1972 he was Technical Signals Officer in the Indian Air Force where he worked on missile Coordinate Control Systems. He was briefly employed at Howard University as a Research Assistant. He worked with the General

Electric Company at Valley Forge Space Center and in February 1978 he joined the Electron Dynamics Division, Hughes Aircraft Company, Torrance, CA, where he is currently working on GaAs FET device reliability studies and GaAs FET MIC circuit design.

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Charles E. Smith (S'58-M'60) was born in Clayton, AL, on June 8, 1934. He received the B.E.E., M.S., and Ph.D. degrees from Auburn University, Auburn, AL, in 1959, 1963, and 1968, respectively.

While pursuing his advanced degrees from 1959 to 1968, he was employed as a Research Assistant with the Auburn University Research Foundation. In Late 1968, he accepted a position of Assistant Professor of Electrical Engineering with the University of Mississippi,

University, and he advanced to the rank of Associate Professor in 1969. He was appointed Chairman of the Electrical Engineering Department in 1975, and he is currently Professor and Chairman of this department.

His main areas of interest are related to the application of electromagnetic theory to microwave circuits and antennas. His recent research has been on the application of numerical techniques to microstrip transmission lines and low-frequency antennas.

Dr. Smith is a member of Eta Kappa Nu, Tau Beta Pi, Pi Mu Epsilon, Sigma Xi, Phi Kappa Phi, and the American Society of Engineering Education.

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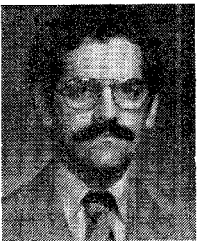


Stanislaw S. Stuchly (M'70-SM'72) was born in Lwow, Poland, on November 20, 1931. He received the B.Sc. degree from the Technical University, Gliwice, Poland in 1953, the M.Sc. degree from the Warsaw Technical University, Poland, in 1958, both in electrical engineering, and the Ph.D. degree from the Polish Academy of Sciences, Warsaw, Poland, in 1968.

From 1953 to 1959 he was a Research Engineer in the Industrial Institute for Telecommunications, Warsaw. From 1959 to 1963 he

was with the Warsaw Technical University. In 1963 he joined UNIPAN-Scientific Instruments, subsidiary of the Polish Academy of Sciences. From 1970 to 1976 he was with the University of Manitoba, Winnipeg, Canada. Since 1977 he has been with the University of Ottawa, Canada, where he is presently a Professor of electrical engineering.

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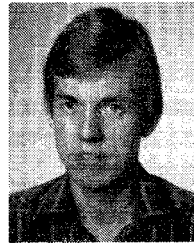


Nikolaos K. Uzunoglu was born in 1951 in Istanbul, Turkey, where he obtained the B.Sc. degree in electrical engineering in 1973. He received the M.Sc. and Ph.D. degrees from the University of Essex, Essex, England, in 1974 and 1976, respectively.

He worked as Research Officer in the University of Essex in the academic year 1975-1976. Since 1976 he has been working as a Research Scientist in the Department of Electrical Engineering of the National Technical University

of Athens, Athens, Greece. His special interest is on electromagnetic theory, specifically on electromagnetic scattering theory, radiowave propagation phenomena, and dielectric waveguides.

Dr. Uzunoglu is a member of the Optical Society of America and the Technical Chamber of Greece.



Gerard H. in't Veld was born in Twello, the Netherlands, on July 16, 1950. Since November 1978, he has been completing his study in mathematics at the Technological University, Eindhoven, the Netherlands.

He joined N. V. Philips' Gloeilampenfabrieken Eindhoven, the Netherlands, where he was first engaged in the field of integrated circuits and on the numerical analysis of color picture tubes. From 1976 to 1978 he worked at the Philips Research Laboratories on the numerical

analysis of waveguide discontinuities.

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James R. Wait (SM'56-F'62) received the B.A.Sc., M.A.Sc., and Ph.D. degrees from the University of Toronto, Ont., Canada, in 1948, 1949, and 1951, respectively.

After spending some time geophysically prospecting in Arizona, he turned seriously to electromagnetics in 1952 at the Radio Physics Laboratory in Ottawa, Canada. In 1955 he accepted an offer from the National Bureau of Standards, and since then has been with the Boulder Laboratories of the US Department of

Commerce, Colorado. His principal affiliation is now with the National Oceanic and Atmospheric Administration. He is also a Fellow of the Cooperative Institute for Research in Environmental Sciences, University of Colorado, Boulder, as well as a Professor Adjoint in the Electrical Engineering Department of the University. In addition, he acts as Consultant to the Institute of Telecommunication Sciences in Boulder.

In 1977 Dr. Wait was elected to the US National Academy of Engineering. Also, in June 1977, he was elected to be a Fellow of the Institution of Electrical Engineers (IEE). He received the Balh Van der Pol Gold Medal awarded at the General Assembly of the International Union of Radio Science in July 1978 in Helsinki, Finland.

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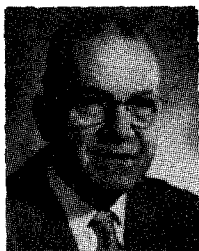


Kenneth P. Weller (S'63-M'69) was born in Paterson, NJ, on October 9, 1942. He received the B.S., M.S., and Ph.D. degrees from the University of California, Berkeley, in 1965, 1966, and 1969, respectively.

Since joining TRW Systems Group, Redondo Beach, CA, in February 1979, he has been engaged in the development of GaAs FET amplifiers for both low-noise and power applications. Prior to joining TRW, he was with Hughes Aircraft, Torrance, CA. There he initially

worked on IMPATT components for millimeter system applications and later supervised the development of a GaAs FET component product line. From 1969 to March 1973, he was on the technical staff at RCA Laboratories, Princeton, NJ, where he worked on the fabrication and characterization of millimeter wave solid-state devices.

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



Harold A. Wheeler (A'27-M'28-F'35-LF'68) was born in St. Paul, MN, on May 10, 1903. He received the B.S. degree in physics in 1925 and the honorary degree of Doctor of Science in 1972 from George Washington University, Washington, DC. He did post-graduate work, until 1928 at the Johns Hopkins University, Baltimore, MD. In 1978 he received the honorary degree of Doctor of Engineering from Stevens Institute of Technology.

He was employed by the Hazeltine Corporation from 1924 to 1946, advancing to Vice-President and Chief Consulting Engineer. In 1959, he resumed activity with this company as a Director, and is now Chairman Emeritus and Chief Scientist. From 1947, he was President of Wheeler Laboratories, Inc., Great Neck, NY, which became a subsidiary of Hazeltine Corporation and in 1971 merged into the parent company. His activity in the field of microwaves dates back

to World War II, when he was one of the leaders in the Combined Research Group at NRL. That group was developing the future system of IFF (Interrogation Friend-or-Foe), then designated the Mark V. From that beginning grew the Mark XII, which is now the standard. In the Wheeler Laboratories, during the two decades after the war, he directed advanced work on microwave antennas and circuits, largely for precision tracking radar. He has contributed many papers to IRE periodicals; and has been granted 180 U.S. patents and many foreign patents.

Mr. Wheeler has served the IRE in such positions as Director (1934, 1940-1945) and Chairman of the Standards Committee; he received the Morris N. Liebmann Memorial Prize from IRE in 1940. In 1964, he was awarded the Medal of Honor by IEEE and the Armstrong Medal by the Radio Club of America. In 1975, he was second to receive from MTT-S the Microwave Career Award. He is a Fellow of the Radio Club of America, an Associate Fellow of AIAA, an Associate Member of Institution of Electrical Engineers (U.K.), and a member of Sigma Xi and Tau Beta Pi.