

Contributors



Peter P. Antich was born in Zagreb, Yugoslavia, in 1938. He studied at the University of Milan, Milan, Italy, and received the Ph.D. degree in physics from The John Hopkins University, Baltimore, MD, in 1971.

He was a member of the Italian Institute for Nuclear Physics (INFN) until 1975. He performed experiments on strong interactions in high energy physics at Brookhaven National Laboratories, Upton, NY, Stanford Linear Acceleration Center, Stanford, CA, and European Center for Nuclear Research, Geneva, Switzerland. He served as a member of the working party on hybrid bubble chambers of the European Committee on Future Accelerators from 1971 to 1972, and on the National Advisory Council on Visual Techniques of the INFN from 1971 to 1975. Since June 1977, he has been a Research Associate Professor at the Mount Sinai School of Medicine, Department of Radiotherapy, New York, NY.

Dr. Antich is a member of Phi Beta Kappa, Sigma Xi, AAPM, and APS. He was sponsored by the Gilman Fellowship from 1966 to 1970. In 1976, he was awarded as ACS-NYCD Fellowship in Hospital Radiological Physics at the Memorial Hospital for Cancer and Allied Diseases, New York, NY.

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E. Ronald Atkinson (M'71) was born in New York, NY, on July 13, 1935. He received the B.Sc. degree in biophysics from the City College of the City University of New York, New York, in 1960, the M.Sc. degree from New York University, New York, in 1961, the Doctorat (chemistry) degree from the Sorbonne, Paris, France, in 1962, and the Ph.D. degree in physics from the University of California, Riverside, in 1970.

He worked under a French Government Fellowship at the Sorbonne, Paris, France, from 1961 to 1962, and under an Office of Naval Research Fellowship at the University of California, in 1969. He was a Member of the Research Staff at Charles Pfizer, Inc., from 1958 to 1962, a Project Engineer for the Bendix Corporation from 1962 to 1964, a Member of the Research Staff at Northrop Space Laboratories from 1964 to 1966, a Senior Physicist at the Naval Weapons Center from 1967 to 1975, and a Visiting Scientist at the National Heart, Lung, and Blood Institute from 1971 to 1975. He has been the Physical Sciences Project Officer at the National Cancer Institute, Bethesda, MD, since 1975. He was also a Lecturer at New York University, New York, from 1962 to 1963, and has been a Consultant since 1964. His areas of interest are electron devices, the interaction of radiation with matter, atmospheric optics, molecular excited states, biophysics, photochemistry, and operational analysis.

Dr. Atkinson has been a member of the DDR&E Advisory Groups, Department of Defense, since 1967, a member of the NIH Advisory Groups, Department of Health, Education, and Welfare, since 1971, and Chairman of Electro-Optical Systems International, since 1970. He is a member of AAAS, the Americal Physical Society, and the Optical Society of America.

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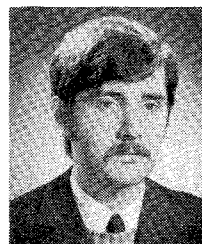
Robert J. Baker was born in St. Louis, MO. He received the B.S. degree in physics from the University of Missouri, Rolla, in 1959. He received the M.S. degree in physics from St. Louis University, St. Louis, MO, and the Ph.D. degree in solid-state physics from the same university in 1970.



After receiving the B.S. degree, he spent three years as a Lieutenant in the Army Corps of Engineers in Mannheim, Germany. He then returned to St. Louis, MO, to work at the McDonnell-Douglas Aircraft Corporation as a Test Engineer in the space program. After receiving the Ph.D. degree, he trained in radiologic physics at the Mallinckrodt Institute, Massachusetts General Hospital, with two years on the biophysics training program and an affiliation with Harvard Medical School as a Research Fellow in medicine, and then for one year with Boston University Medical Center. He held a staff position in the Radiation Oncology Department at the University of California, San Francisco, as a Hospital Radiation Physicist for four years. In addition to his clinical physics responsibilities, his research interest included hyperthermia applied to cancer treatment. Currently, he is Radiation Physicist at Parkview Memorial Hospital, Fort Wayne, IN.

Dr. Baker has been an active member and has held offices in the American Association of Physicists in Medicine, and is a member of the Health Physics Society and the Radiation Research Society.

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Yahya Kemal Baykal was born in Turkey in 1953. He received the B.Sc. and M.Sc. degrees in electrical engineering from the Middle East Technical University, Ankara, Turkey, in 1974 and 1976, respectively. He is now working towards the Ph.D. degree in biomedicine at Northwestern University, Evanston, IL.

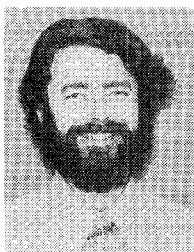
Mr. Baykal is a member of the Turkish Electrical Engineers Association.

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Marian Bielec was born in 1938 in Poland. He graduated from the Faculty of General Medicine University Medical School, Lodz, Poland, in 1962. In 1975 he obtained the Ph.D. degree on the basis of his thesis entitled, "Use of Thermography for Quantitation of the Amount of Absorbed Energy in Animals Irradiated with Microwaves." After graduation he completed training in internal medicine with special emphasis on cardiology and later on chemotherapy of solid tumors and leukemias.

In 1973 he obtained the certificate of Senior Expert in internal medicine and until then was affiliated at the Centre for Radiobiology and Radioprotection, Warsaw, Poland. His main research interest is concentrated on health surveillance of personnel occupationally exposed to microwave radiation and new forms of cancer therapy, including the use of microwave hyperthermia and the application of thermography in experimental studies of biologic objects irradiated with microwaves. He has published 12 scientific papers and became a co-winner of the 1976 International J. G. Zimmermann Prize, presented by the University Medical School, Hannover, Germany.



Charles A. Cain (S'65-S'71-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 Assistant Professor. He has been involved with research on the biological effects and medical applications of nonionizing electromagnetic radiation.

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J. B. Caulfield (M'74) was born in Minneapolis, MN, on January 1, 1927. He received the M.D. degree from the University of Illinois College of Medicine, Urbana, in 1950.

His internship was completed at Henrotin Hospital, Chicago, IL, in 1951. Since that time, he has been a Fellow in Pathology from 1951 to 1952 at the University of North Carolina, a Resident in Pathology at the University of Kansas Medical Center, Lawrence, from 1954 to 1955, Visiting Investigator at the Rockefeller Institute, New York, from 1955 to 1956, an Instructor and Assistant Professor in Pathology from 1956 to 1959 at the University of Kansas, Lawrence, an Assistant and Associate Pathologist at Massachusetts General Hospital, Boston, from 1959 to 1975, and an Instructor, Assistant Professor, and Associate Professor of Pathology at Harvard Medical School, Cambridge, MA, from 1959 to 1975. He is presently Professor and Chairman of the Department of Pathology at the University of South Carolina, Columbia.

Dr. Caulfield is certified in Pathologic Anatomy by the American Board of Pathology, was past President of the New England Society of Electron Microscopy, is Treasurer of the International Study Group for Research in Cardiac Metabolism, and is a Fellow on the Council of Arteriosclerosis of the American Heart Association.

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Kun-Mu Chen (SM'64-F'76) was born in Taipei, Taiwan, on February 3, 1933. He received the B.S.E.E. degree from the National Taiwan University, Taipei, Taiwan, in 1955, and the M.S. and Ph.D. degrees in applied physics from Harvard University, Cambridge, MA, in 1958 and 1960, respectively.

While at Harvard University, he held the C. T. Loo and the Gordon McKay Fellowships. From 1956 to 1957, he was a Teaching Assistant at the National Taiwan University, and from 1959 to 1960, he was a Research Assistant and Teaching Fellow at Harvard University. From 1960 to 1964, he was associated with the Radiation Laboratory, University of Michigan, Ann Arbor, where he was engaged in studies of electromagnetic theory and plasma. In 1962, while on leave from the University of Michigan, he was a Visiting Professor of Electronics at Chao-Tung University, Taiwan. Since 1964, he has been with Michigan State University, East Lansing, first as Associate Professor of Electrical Engineering, and since 1967 as Professor of Electrical Engineering. From 1968 to 1973, he was the Director of the Electrical Engineering program of the Department of Electrical Engineering and Systems Science. He has published numerous papers on electromagnetic radiation and scattering, and plasmas. His current research interests include the interaction of electromagnetic radiation with biological systems.

Dr. Chen is a fellow of the American Association for the Advancement of Science, a member of U.S. Commissions A, B, and C of the International Scientific Radio Union, Sigma Xi, and Phi Kappa Phi. He is the recipient of the Distinguished Faculty Award from Michigan State University in 1976.

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Augustine Y. Cheung (S'73-M'74) received the B.S., M.S., and Ph.D. degrees in electrical engineering from the University of Maryland, College Park, in 1969, 1971, and 1973, respectively.

He is an Electrical Engineer and an Assistant Professor at the University of Maryland (Department of Therapeutic Radiology, School of Medicine, jointly at University of Maryland at Baltimore and at College Park). He has extensive experience in microwave theory and techniques as well as system design and has conducted research in areas related to microwave hyperthermia and microwave dosimetry.

Dr. Cheung is a member of APS and IMPI.

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Erik De Clercq, photograph and biography not available at the time of publication.

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Barbara J. deLateur, photograph and biography not available at the time of publication.

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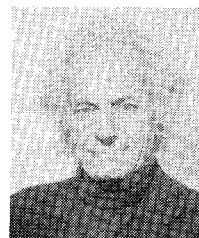


Howard S. Ducoff was born in New York, NY, on May 5, 1923. He received the B.S. degree in biology from the City College of New York, New York, NY, in 1942 and the Ph.D. degree in physiology from the University of Chicago, Chicago, IL, in 1953.

From 1946 to 1957 he was on the staff of the Argonne National Laboratory. In 1957 he joined the faculty of the University of Illinois, Urbana, IL, where he is now Professor of Physiology and Biophysics and of Bioengineering and serves as Cochairman of the Bioengineering Faculty. His research interests include the biological mechanisms for repair of radiation damage.

Dr. Ducoff is a member of the Radiation Research Society, the American Society for Cell Biology, and Sigma Xi.

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H. Fröhlich was Head of the Department of Theoretical Physics, University of Liverpool, Liverpool, England, until 1972; he was subsequently Emeritus Professor at the same university. He introduced field theory into solid-state physics (polaron, electron-phonon interaction in superconductivity), concepts of hot electrons, soft modes in ferroelectrics, nuclear ferromagnetism, and others.

Prof. Fröhlich is a fellow of The Royal Society, and was awarded the Max Planck

Medal.



John W. Greiser was born in Green Bay, WI. He received a B.S. degree in electrical engineering from University of Wisconsin in 1959, and M.S. and Ph.D. degrees in electrical engineering from University of Illinois in 1963 and 1965, respectively.

From 1965 to 1967 he performed antenna design work for Sperry Gyroscope of Great Neck, NY, and Granger Associates in Palo Alto, CA. From 1967 to 1973 he held various positions at GTE Sylvania, Mt. View, CA including

Antenna Section Head and Communications ECM Section Head. From 1973 to 1975 he was Head of the electromagnetic engineering department of Applied Technology Division of ITEK, Sunnyvale, CA. From 1975 to 1977 Dr. Greiser was Antenna Section Head and Director of Engineering at Transco Products, Inc., Venice, CA. Since 1977 he has been Sr. Staff Engineer in the Space Antenna Department, of the Space and Communications Group, Hughes Aircraft Co., El Segundo, CA.

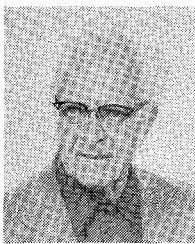
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Arthur W. Guy (S'54-M'57-SM'74-F'77), for a photograph and biography please see page 518 of this issue.

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E. W. Hahn, photograph and biography not available at the time of publication.

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W. D. Hershberger (A'37-SM'45-F'54) received the B.A. degree in mathematics from Goshen College, Goshen, IN in 1927, the M.A. degree in physics from George Washington University, Washington DC, in 1930, and the Ph.D. degree in electrical engineering from the University of Pennsylvania, Philadelphia, in 1937.

From 1927 to 1931, he was employed at the Naval Research Laboratory, Washington, DC, working in ultrasonics for submarine detection.

From 1931 to 1936, he was engaged in short-

wave and microwave work for radio detection at the Signal Corps Laboratories, Fort Monmouth, NJ, where he laid out the design for the first complete radar equipment used by the Signal Corps. From 1937 to 1942, he was employed in the Research Laboratories of RCA, Camden, NJ and from 1942 to 1949 at RCA Laboratories, Princeton, NJ working on the development of a 500-MHz altimeter and obstacle detection equipment operative in flight in 1937. His later contributions were in the fields of microwave spectroscopy and frequency stabilization using the absorption lines of ammonia. Since 1949, he has been a Professor of Engineering at the University of California, Los Angeles, teaching and doing research in the fields of electromagnetic theory, plasma physics, and solid-state electronics.

Dr. Hershberger holds fifty patents, was awarded an RCA Laboratories Award in 1948, and was a Fulbright Scholar at the University of Leiden, The Netherlands. He has served on URSI Commission I, on the IRE Committee on Wave Propagation, and as Chairman of Wescon in 1954. He has published numerous articles and three books, and is a member of AAAS, the American Physical Society, Tau Beta Pi, and Sigma Xi.



Altunkan Hizal was born in Turkey in 1942. He received the B.S., the M.S., and the Ph.D. degrees in electrical engineering from the Middle East Technical University, Ankara, Turkey, in 1964, 1966, and 1970, respectively. In 1977, he received the degree of "Docent" from the Inter-university Council of Turkey.

He is currently an Associate Professor of Electrical Engineering at the Middle East Technical University, Ankara, Turkey. His interests are in electromagnetic scattering with applications to biomedicine and radar meteorology, and numerical solutions of problems related to antennas in the presence of lossy ground.

Dr. Hizal is a member of the Turkish Electrical Engineers Association.

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

He has worked at the Collins Radio Company, Ling-Temco-Vought, and the 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 where he is currently engaged in research on biological effects of electromagnetic radiation.

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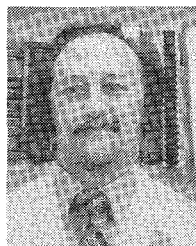


Marek Janiak was born in 1950, in Warsaw, Poland. He graduated from the Faculty of General Medicine, University Medical School, Lodz, Poland, in 1974. During the period from 1977 to 1978 he obtained the Ph.D. degree on the basis of his thesis entitled, "Membrane Injury in Cells Heated to 43°C."

He was affiliated at the Centre for Radiobiology and Radioprotection, Warsaw, Poland. His main research interest is concentrated on biological effects of nonionizing radiation (mostly

microwaves) on cell systems, use of microwave hyperthermia in treatment of experimental neoplasms, and pathophysiology of immune system. He is a coauthor of ten scientific papers, and in 1976 he was a co-winner of the International J.G. Zimmermann Prize for Research on Cancer, presented by the University Medical School, Hannover, Germany.

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Lawrence J. Kane was born in Honolulu, HI, in 1941. He received the B.S. degree in biology from San Francisco State University, San Francisco, CA, in 1966, and attended graduate school at the University of California, Berkeley.

He began working at the Laboratory of Radiobiology, University of California Medical Center, San Francisco, in 1966, determining the effect of oxygen on the radio-response (X-rays) of bone marrow cells. After five years, he then worked in the Department of Radiation Oncology, University of California, until the present. As a Research Specialist,

he is involved in projects evaluating the effects of drugs used in clinical chemotherapy and in combination with conventional or high LET radiation on various animal tumor and normal tissue systems.



Gideon Kantor received the B.E.E. from New York University in 1948, the M.E.E. from Polytechnic Institute of Brooklyn, NY, in 1950, and the Ph.D. in electrical engineering from Cornell University, Ithaca, NY, in 1963.

He is a Physicist at the Bureau of Radiological Health, Food and Drug Administration. His primary responsibility is to evaluate the safety and effectiveness of electronic products. Presently, he is providing technical support to the proposed microwave diathermy standard by studying the thermographic heating patterns and the associated leakage induced by direct contact applicators in simulated tissue. He is also involved in the evaluation of equipment used for microwave-induced hyperthermia treatments of cancer. His previous experience includes being a Member of Technical Staff at the MITRE Corporation, Senior Staff Scientist at the AVCO Corporation, Physicist at the Air Force Cambridge Laboratories, and Research Associate at the Microwave Research Institute, Polytechnic Institute of Brooklyn. The areas of interest were radar system studies and research in radiowave propagation as well as microwave components.

Dr. Kantor is presently Chairman of the Washington Chapter of MTTs. He is a Member of the Admission Committee of the FDA Sigma Xi Club, and is a Registered Engineer in the Commonwealth of Massachusetts.

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J. H. Kim, photograph and biography not available at the time of publication.

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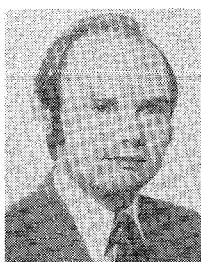


Lan H. Kobe received the B.S. and M.S. degrees in physics from IKIP University, Bandung, Indonesia, in 1964 and 1967, respectively, and the M.S. degree in bioradiology, from the Division of Medical Physics, University of California, Berkeley, in 1975.

From 1968 to 1972, she served as Instructor and Head of the Office for Student Affairs, at the School of Engineering, Tarumanegara University, Jakarta, Indonesia. From 1974 to 1975, she worked for the Cancer Research Laboratory, University of California, Berkeley. During 1975-1977, she was with the Department of Radiation Oncology, University of California, San Francisco, involved in research concerning microwave-induced hyperthermia. She is currently a Clinical Fellow in Radiological Physics at the Division of Radiation Therapy, University of California, Los Angeles.

Ms. Kobe is a member of the American Association of Physicist in Medicine.

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Miroslaw Kobus was born in 1944, in Warsaw, Poland. He graduated from the Faculty of General Medicine, University Medical School, Warsaw, Poland, in 1969. In 1974 he obtained the Ph.D. degree on the basis of his thesis devoted to screening of new antiviral chemotherapeutics *in vivo* and *in vitro*.

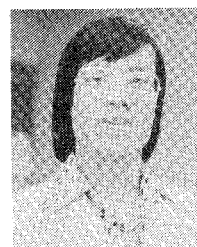
Since that time he has been affiliated at the Laboratory of Virology, Department of Medical Microbiology and Immunology, University Medical School, Warsaw, being, at present, the

Senior Research Worker. During his work, he completed his training in medical microbiology, diagnostics, and applied virology, and in 1977 he obtained the certificate of Senior Expert in Medical Microbiology. His main research interest is concentrated on new methods of antiviral and antineoplastic therapy in experimental infections and inhibiting effect of microwave radiation on viral infections *in vitro* and *in vivo*. Additionally, he is engaged in full-time teaching of students at the University Medical School, Warsaw, Poland. He has published 16 scientific papers and became a co-winner of the 1976 International J. G. Zimmermann Prize for Research on Cancer presented by the University Medical School, Hannover, Germany.

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A. K. Krey, photograph and biography not available at the time of publication.

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Ping-kwong Lai (M'78) was born on March 21, 1947, in Kowloon, Hong Kong, B.C.C. He received the B.S. degree in chemistry from the Wisconsin State University, River Falls, in 1970 and the M.S. degree in chemistry and the Ph.D. degree in biophysics from the University of Illinois at Urbana in 1972 and 1977, respectively.

He is currently a postdoctoral Research Associate in the Department of Radiology, University of Pittsburgh, School of Medicine, PA.

His research interest is in the synergistic biological effects of ionizing radiation interacting with other modalities, viz., hyperthermia, microwaves, ultrasound, and chemotherapeutic drugs. He received a Radiation Research Society Travel Award in 1975.

Dr. Lai is an associate member of the Radiation Research Society and a member of Sigma Xi.

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Lawrence E. Larsen was born in Denver, CO, in 1943. He received the B.S. degree from the University of Colorado College of Arts and Sciences, Boulder. He received the M.D. (magna cum laude) degree from the School of Medicine, the University of Colorado, Boulder, in 1968. He then received a two-year NIH Postdoctoral Fellowship at the Brain Research Institute, the University of California, Los Angeles, in bi-mathematics.

From 1970 to 1973, he served duty as a Research Physiologist in the U.S. Army at the Walter Reed Army Institute of Research, Department of Microwave Research. He then accepted an appointment as Assistant Professor of Physiology and Computer Science at the Baylor College of Medicine, Houston, TX. He returned to Walter Reed in 1975 as Associate Chief for Biophysics, Department of Microwave Research, and became Chief in 1977. He is presently serving as Major, in the Medical Corps, U.S. Army Medical Research and Development Command.

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Justus F. Lehmann, photograph and biography not available at the time of publication.



Mirosław Luczak was born in 1938, in Poland. He graduated from the Faculty of General Medicine, University Medical School, Warsaw, Poland in 1962. From 1964 to 1968 he was a postgraduate student at the Department of Microbiology, University Medical School, Warsaw and obtained the Ph.D. degree in virology on the basis of his thesis entitled, "Comparative Studies on Susceptibility of Established Cell Lines to Parainfluenza 3 Virus."

In 1971 he obtained the certificate of Senior Expert in Medical Microbiology and became a Senior Research Worker at the Department of Medical Microbiology and Immunology, University Medical School, Warsaw, Poland. In 1977 he obtained the degree of Assistant Professor of Bacteriology on the basis of his thesis entitled, "Inhibition of Viral Infections *In Vivo* and *In Vitro* by Selected Chemical Substances and Physical Factors." In 1972 he was on leave at the research training fellowship in Czechoslovakia with Dr. Blaskovic and from 1974 to 1975 in Belgium with Dr. E. De Clercq. His main research interest is concentrated on new forms of therapy of viral infections, inhibition of virus multiplication by chemotherapeutics and microwave radiation, and immunology of viral infections. Additionally, he is engaged in full-time teaching of students at the University Medical School, Warsaw, Poland. He has published 32 scientific papers.

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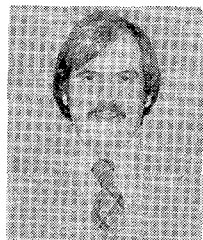


Duncan McCulloch received a degree in physiological psychology from Princeton University, Princeton, NJ, in 1950, and a degree in electrical engineering from the Johns Hopkins University, Baltimore, MD, in 1972.

He is a Research Associate of the University of Maryland School of Medicine, Baltimore, with joint appointments in the Division of Radiation Research, Department of Therapeutic Radiology, and in the Section of Neurobiology, Institute of Psychiatry and Human Behavior,

where he has a background in engineering signal analysis. He has held project responsibility for developing the free-field microwave heating system described in this paper.

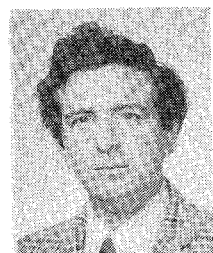
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John A. Milner was born in Pine Bluff, AR, on June 11, 1947. He received his Ph.D. from Cornell University, Ithaca, NY, in 1974.

In 1975 he became an Assistant Professor (Nutrition) in the Department of Food Science, University of Illinois, Urbana. At present, one of his main fields of interest is the synergistic effects of nutrition and hyperthermia on growth and development of neoplastic tissues.

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Seyed Hossein Mousavinezhad (S'75-M'77) was born in Tehran, Iran, on February 23, 1947. He received the B.S.E.E. degree from the National Taiwan University, Taipei, Taiwan, in 1972, and the M.S. and Ph.D. degrees in electrical engineering from Michigan State University, East Lansing, in 1973 and 1977, respectively.

From 1967 to 1972, he was a Sino-Iranian exchange student studying at the National Taiwan University, Taipei, Taiwan. From 1973 to 1977, he was a Teaching and Research Assistant at Michigan State University, East Lansing. He is now an Assistant Professor of Electrical Engineering at Ferdowsi University, Mashhad, Iran.

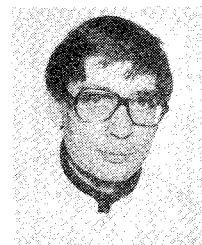


Dennis Paul Nyquist (S'63-M'67) was born in Detroit, MI, on August 18, 1939. He received the B.S.E.E. and M.S.E.E. degrees in 1961 and 1964, respectively, and the Ph.D. degree in electrical engineering from Michigan State University, East Lansing, in 1966.

Prior to obtaining the Ph.D. degree, he was a Research Engineer at the Ford Research Laboratories. He held an Engineering College Predoctoral Fellowship during his doctoral program at Michigan State University, East Lansing. He joined the Electrical Engineering Faculty at Michigan State University as an Instructor in 1966, became Assistant Professor in 1967, and has remained as Associate Professor since 1970. He has published a number of papers on electromagnetic radiation, antennas, and scattering. His current research interests include the interaction of electromagnetic fields with biological bodies.

Dr. Nyquist is a member of Commission B of the International Scientific Radio Union, the American Association for the Advancement of Science, Sigma Xi, and Phi Kappa Phi. He was the recipient of the Michigan State University Teacher-Scholar Award in 1969.

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Jens Overgaard was born on November 27, 1945. He graduated from the University of Aarhus Medical School, Aarhus, Denmark, in 1971.

From 1971 to 1976 he trained in clinical medicine and in cell and radiation biology. From 1976 to 1977 he was a resident in radiation medicine at the Massachusetts General Hospital and was a Clinical Fellow in radiation therapy at Harvard Medical School. Currently, he is a Clinical Assistant in radiotherapy at the

University of Aarhus and an Associate Staff Member at The Institute of Cancer Research, Aarhus, Denmark. He has participated in clinical and fundamental research in hyperthermia and cancer treatment since 1969.

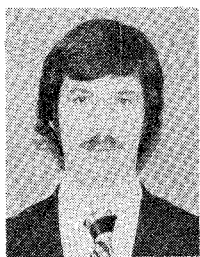
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Theodore L. Phillips is a Professor of Radiology and Chairman of the Division of Radiation Oncology, University of California, San Francisco (UCSF). He is a Research Associate in the Laboratory of Radiobiology and the Cancer Research Institute, a Member of the Board of Directors of the Northern California Cancer Program, Chairman of the Radiotherapy Committee of the Northern California Oncology Group, and Chairman of the UCSF Cancer Committee of the Medical Staff. In the area of

experimental radiotherapy research, he is nationally recognized for his work in the study of the effect of oxygen on radiation response and the repair of radiation injury, the investigation of normal tissue damage following single and multiple dose irradiation, and the development of quantitative endpoints for measuring normal tissue damage. More recently, he has been involved in innovative research in the area of the effects of high linear energy transfer radiations on normal tissues and tumor, the effect of radioprotective compounds on radiation injury to normal tissue, and on the interaction of radiation and chemotherapeutic agents on normal tissue and on tumors. In clinical research, he has been active in the investigation of the treatment of tumors of the central nervous system, the head and neck, soft tissue, bone, and gynecologic sites. He is Chairman of the Radiobiology Committee of the Radiation Therapy Oncology Group.

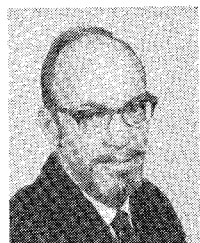
Dr. Phillips was recently elected as President of the Radiation Research Society. He is a member of the Clinical Trials Advisory Committee of the Division of Cancer Treatment of the National Cancer Institute, and a number of national committees and study groups which advise the National Cancer Institute in radiation oncology. He is currently on the editorial boards of the *Journal of Radiation Research* and the *International Journal of Radiation Oncology, Biology, and Physics*.



Gerald E. Piontek (S'71-M'76) was born in Hamtramck, MI, in 1948. He received the Ph.D. degree in Bioengineering in 1976 at The University of Michigan, Ann Arbor.

Dr. Piontek is a post-doctoral fellow in the Radiation Oncology Training Program at the University of Illinois, Urbana, and has research interests in immunology, hyperthermia, and the bioeffects of electromagnetic and ultrasonic radiations.

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J. Eugene Robinson received the B. S. degree in physics from Utah State Agricultural College, Logan, in 1947, and the M.A. and Ph.D. degrees in physics from Washington University, St. Louis, MO, in 1949 and 1955, respectively.

He is Professor of Radiology and Head of the Division of Radiation Research at the University of Maryland School of Medicine, Baltimore. He has a broad background in medical radiation physics and radiobiology. His principal research area has been the application of hyperthermia

alone and in conjunction with ionizing radiation for potential use in cancer therapy.

Dr. Robinson has chaired several committees on the American Association of Physicists in Medicine and the Radiation Safety Community of the University of Maryland, Baltimore. He was Co-Chairman of the First International Symposium on Cancer Therapy by Hyperthermia and Ionizing Radiation in 1975.

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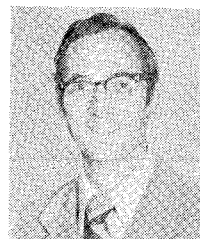
George M. Samaras (S'72-M'76) received the B.S.E.E. (BioMedical) degree, the M.S. degree in physiology, and the Ph.D. degree in neurophysiology/neuropharmacology, all from the University of Maryland, College Park, in 1972, 1974, and 1976, respectively.

He is an Engineer/Physiologist and an Assistant Professor of Radiology at the University of Maryland School of Medicine, Baltimore. He has extensive experience in computer hardware/software systems interfacing and has

worked as a Biomedical Engineer for the Environmental Protection Agency. He is currently doing research and development in microwave-induced hyperthermia systems for use in cancer therapy. He has worked as a Consultant for biomedical and cybernetic system development and was Editor of the *Forum*, a journal of the American Society for Cybernetics.

Dr. Samaras is a member of the AAAS and the AAMI (High Frequency Therapeutic Device Standards Committee).

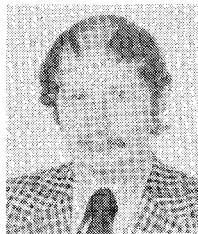
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T. L. Simpson (S'56-M'57) was born in Knoxville, TN, on December 13, 1935. He received the Ph.D. degree in engineering and applied physics from Harvard University, Cambridge, MA, in 1970.

He was employed by DECO Electronics, Leesburg, VA in the area of antenna design until 1968. Since that time, he has been a Faculty Member at the University of South Carolina, Columbia, with research interests in parametric amplification, numerical methods,

and applications of microwave power. During a leave of absence in 1975-1976 he was employed by Electrospace Systems, Richardson, TX, where he participated in research related to high-powered land-based and airborne VLF systems.



Vernon Smith received the Masters degree in radiation physics from the University of London, London, England, and the Bachelors degree in physics from the University of Bristol, Bristol, England.

He has gained broad experience in radiological physics at St. Bartholomew's Hospital, London, England, since 1962. More recently, he has been associated with the Department of Radiation Oncology at the University of California, San Francisco, since 1967, where he is

presently Chief Physicist and Adjunct Associate Professor of Physics in the Division of Radiation Oncology. Since 1968, he has been a Research Associate of the E.R.D.A. Laboratory of Radiobiology, University of California, San Francisco. His main work has been concerned with radiotherapy physics and he has been active in research and development, especially in regard to computed tomography and other computer applications in radiation therapy. In 1969, he organized a radiological physics group to bring improved standards of physics support to community hospitals under a grant from the California Regional Medical Program (RMP). This program has continued on a self-supporting basis since the termination of the RMP support.

Mr. Smith has served the State of California on task groups and selection committees and has served the American Association of Physicists in Medicine both locally and on national committees. He has been President of the San Francisco Bay Area Chapter of the AAPM for 1974-75, a member of the AAPM Committee on Computer Applications, and the AAPM Committee on the Training of Medical Physicists, and most recently has served a three-year term on the national Board of Directors of the AAPM.

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Carrol C. Sorensen, photograph and biography not available at the time of publication.

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Jerry B. Stonebridge, photograph and biography not available at the time of publication.

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Stanislaw Szmigielski was born in 1939, in Lodz, Poland. He graduated from the Faculty of General Medicine, at the University Medical School, Lodz, Poland, in 1961. From 1963 to 1965 he was a post graduate student at the Department of Microbiology, at the University Medical School, Warsaw, Poland, and in 1967 he obtained the Ph.D. degree in natural sciences on the basis of his thesis entitled, "Histochemical Changes in KB Cell Cultures Infected with Parainfluenza 3 Virus."

From 1961 to 1963 he was affiliated at the Department of Clinical Hematology, National Institute of Hematology, Warsaw, Poland, and at that time his research interest was concentrated on physiopathology of granulopoiesis and the use of histochemical methods in hematology. From 1965 to 1974 he was affiliated at the Military Institute of Aviation Medicine and worked in the Laboratory for Biological Effects of Electromagnetic Radiation. In 1968 he was on leave at the Research Training Fellowship of the International Union Against Cancer and spent that time in The Netherlands. In 1973 he obtained a degree of Assistant Professor of Pathophysiology on the basis of his thesis entitled, "Evaluation of the Functional State of Granulopoiesis After its Stimulation and Inhibition." Since 1974, he has been affiliated at the Centre for Radiobiology and Radioprotection as Head of the Laboratory for Biological

Effects of Microwaves and Consulting Professor of Pathophysiology. In 1976 he obtained the degree of Associate Professor. Also in 1976, he was on leave at the Department of Microbiology, Vanderbilt University Medical School, Nashville, TN. Currently, his main research interest is concentrated on biological effects of microwave radiation, with special emphasis on cellular, hematologic and immunologic effects, and inhibition of viral infections by microwave hyperthermia. Since 1975 he has worked on the use of whole-body and localized microwave hyperthermia in the treatment of experimental neoplasms. He has published 112 scientific papers and two monographs. He was a winner of several research prizes in Poland and a co-winner of the 1976 International J. G. Zimmermann Prize for Research on Cancer, presented by the University Medical School, Hannover, Germany.

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J. E. Thompson (M'75) was born in Lubbock, TX, on January 24, 1946. He received the Ph.D. degree in electrical engineering from Texas Tech University, Lubbock, in 1974.

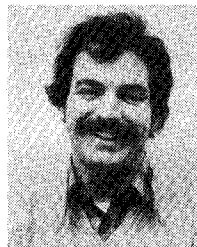
He was a member of the Technical Staff at Northrop Research and Technology Center in Hawthorne, CA, from 1974 to 1976 where he was engaged in high-power infrared laser research and development. Since that time, he has been a Faculty Member at the University of South Carolina, Columbia. His current research

activities include tumor diagnostics utilizing microwaves, ultrasound, and thermography, high-voltage insulator flashover studies, electrooptical field measurement techniques, and high-power switch development.

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N. Tokita, photograph and biography not available at the time of publication.

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Donald M. Witters, Jr., was born in Bethesda, MD, March 12, 1953. He received a Bachelor's Degree in the physical sciences from the University of Maryland, College Park, in 1975.

As a senior in college, he worked part-time at the Bureau of Radiological Health's Division of Electronic Products. Presently, he is a Staff Physicist at the Bureau in charge of the calibration of all Food and Drug Administration microwave oven survey instruments. He has worked closely on the development of an im-

plantable, miniature, *E*-field dipole/diode detector probe with optically linked readout system. Currently, he is involved in the evaluation of various microwave oven survey instruments and the development of a microwave diathermy performance standard. This work involves such aspects as the mapping of electric near-field patterns of microwave diathermy and correlation of these maps with thermographic camera heating patterns of planar muscle slabs.