Authors

Richard E. Blahut

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Dr. Blahut is a senior engineer in Owego where he joined IBM in 1964. He has general responsibility for the analysis and design of coherent signal processing systems, digital communication systems, and statistical information processing systems. He is especially involved in the areas of advanced surveillance systems and jamproof communication systems. He received a B.S. in electrical engineering from the Massachusetts Institute of Technology, Cambridge, in 1960, an M.S. in physics from the Stevens Institute of Technology, Hoboken, New Jersey, in 1964, and a Ph.D. in electrical engineering from Cornell University, Ithaca, New York, in 1972. Since 1973 he has taught at Cornell University, currently in the position of Adjunct Associate Professor. Dr. Blahut is a senior member of the Institute of Electrical and Electronics Engineers and a member of the American Association for the Advancement of Science.

Ted F. Ciszek

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Mr. Ciszek joined the Photovoltaics Branch of SERI in 1978. From 1972 to 1978, he worked at IBM's System Products Division in East Fishkill, New York, as a crystal growth consultant. He helped to introduce and guide silicon crystal growth projects, studied methods for ribbon growth, and conducted crystal defect studies. Prior to joining IBM, Mr. Ciszek worked on various silicon growth techniques at Dow Corning Corporation, Hemlock, Michigan. He obtained his B.S. in 1964 from Case Institute of Technology, Cleveland, Ohio, and his M.S. (physics) in 1966 from Iowa State University, Ames. He is a member of the American Association for Crystal Growth, the American Physical Society, Sigma Xi, and Tau Beta Pi.

Jerome J. Cuomo

Research Division, Yorktown Heights, New York

Mr. Cuomo received the B.S. degree in chemistry from Manhattan College in 1958 and the M.S. degree in physical chemistry from St. John's University, Jamaica, New York, in 1960, where he also served as a teaching assistant. He joined the IBM Research Division in 1963 and is presently manager of a materials area at the Thomas J. Watson Research Center. His interests are in processes for materials preparation, which include sputter deposition, chemical vapor deposition, and electrodeposition. Some particular interests are in epitaxy, stoichiometric compound formation, and in the preparation of materials in their metastable states. Mr. Cuomo received an IBM Outstanding Invention Award in 1972 for his work in the area of amorphous magnetic bubble material. He is a member of the American Vacuum Society and also a member of Sigma Xi.

Arthur F. Diaz

Research Division, San Jose, California

Dr. Diaz joined IBM in 1975 at the Research laboratory in San Jose, where he is a member of a surface, thin film, and plasma science group. His current interests are in the area of the preparation and study of modified surfaces that can be used in molecule selective reactions. He received his B.S. in chemistry from San Diego State College in 1960 and his Ph.D. in chemistry from the University of California at Los Angeles in 1964. He held several positions before coming to IBM, including staff appointments at the National Science Foundation, the University of California at San Diego, TRW Systems, and the University of California at Los Angeles.

Marvin J. Freiser

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Dr. Freiser is in a theoretical physics group at the Thomas J. Watson Research Center; however, he is currently on faculty loan to Spelman College, Atlanta, Georgia. He joined IBM in 1957 after having taught at Worcester Polytechnic Institute, Massachusetts. At IBM he has worked primarily on magneto-optic and other properties of magnetic materials and has also done research on liquid crystals and molecular bilayers. Dr. Freiser received a B.S. in 1947 in physics and mathematics from Brooklyn College, New York, and in 1955 received a Ph.D. in physics from Purdue University, Lafayette, Indiana.

Richard J. Gambino

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Mr. Gambino is acting manager of an amorphous magnetism group at the Thomas J. Watson Research Center. His current research interest is the magnetic properties of amorphous alloys. He received a B.A. in chemistry from the University of Connecticut, Storrs, in 1957 and an M.S. in chemistry from the Polytechnic Institute of New York, New York, in 1976. Prior to joining IBM in 1961, Mr. Gambino worked at the U.S. Army Signal Research and Development Laboratory, Ft. Monmouth, New Jersey, until 1960; and at the Whitney Aircraft Division of United Aircraft Corporation from 1960 to 1961. Mr. Gambino has authored or coauthored many technical publications on crystal growth, magnetic and superconducting properties of alloys and intermetallic compounds, sputtering, galvanomagnetic and magneto-optic effects in thin films and the preparation and properties of amorphous magnetic films. He holds eleven issued U.S. patents and is a coauthor of a chapter in *Physics in Thin Films*. In 1972, he received an IBM Outstanding Invention Award for his work in amorphous magnetic materials. Mr. Gambino is a member of the American Vacuum Society and Sigma Xi.

K. Keiji Kanazawa

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Dr. Kanazawa joined IBM in 1968 and conducted investigations into the transient photoconductive and dielectric behaviors of organic photoconductors. In 1974 he began to study electron transfer processes in electrochemical environments. His current interests include experimental investigations of heterogeneous redox reactions using ac voltammetry, electron migration across solids and solid/solid interfaces, and instrumental techniques for electron transfer studies. He received a B.S. in applied physics in 1957 from the University of California at Los Angeles and a Ph.D. in physics in 1964 from the University of Illinois, Urbana, where he studied electron properties in CdTe using cyclotron resonance techniques. In the ensuing four years, he studied the metal-insulator transition in the vanadium oxides while on the staff at the University of California at Riverside. Dr. Kanazawa is a member of the Electrochemical Society.

Raymond Lorie

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Mr. Lorie joined IBM Belgium in 1960 as a member of an applied sciences department. From 1969 until 1973 he worked on earlier prototypes of relational systems at the IBM Cambridge Scientific Center, Massachusetts. Since 1973 he has been a research staff member in a data base architecture group at the Research laboratory. During the last years he has worked on the general architecture of relational data base systems and, in particular, on the optimization and compilation of high level data languages. His current interest is in data base machines. Mr. Lorie graduated as an electrical and mechanical engineer from the University of Brussels in 1959.

William H. McCumber

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Mr. McCumber is manager of a performance analysis department under IBM's contract with the U.S. Department of Energy for the analysis of solar instrumented data (ASID). He received his B.S. in electrical engineering from the University of Oklahoma, Norman, in 1960, and his M.S. in engineering from the University of Alabama, Huntsville, in 1971, majoring in topological analysis of large systems. He joined IBM in 1968, following eight years with the McDonnell Douglas Corporation, where he contributed to the design, test, evaluation, and real-time control of the SKYBOLT air-launched ballistic missile and the Saturn S-IVB stage at flight test locations at Eglin Air Force Base, Ft. Walton Beach, Florida, Cape Canaveral, Florida, and NASA Mission Control, Houston, Texas. At IBM he managed the instrument unit mission evaluation department during the peak-activity years of the Apollo lunar exploration program and led several space-related studies in the post-Apollo period before being assigned to the ASID program. He is author of several papers on analysis of solar energy systems and solar collectors.

Arthur Nádas

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Dr. Nádas is senior mathematician in a scientific computation department. His current professional interests include research in and application of probability and statistics to problems in engineering, programming, and management. He joined IBM in 1961 in the Product Testing Laboratory, Poughkeepsie, New York, where he worked on System/360 qualification. From 1964 to 1966, he was an IBM resident graduate fellow at Columbia University, New York. From 1967 to 1968, he worked on semiconductor reliability in Poughkeepsie. Dr. Nádas was assistant professor of mathematics at the Polytechnic Institute of Brooklyn, New York, from 1968 to 1970. He started his present assignment in 1972 where his work included computer hardware performance studies as well as the modeling of ion beams. Dr. Nádas spent a sabbatical year, 1977 to 1978, at the Thomas J. Watson Research Center. He received the B.A. in mathematics from Alfred University, Alfred, New York, in 1959; the M.A. in mathematics from the University of Oregon, Eugene, in 1961; and the Ph.D. in mathematical statistics from Columbia University in 1967. Dr. Nádas is a member of the Institute of Mathematical Statistics and Sigma Xi, and a fellow of the Royal Statistical Society.

Jorgen F. Nilsson

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Dr. Nilsson joined IBM in 1976 on a one-year postdoctoral assignment in the position of guest scientist with the IBM Research laboratory in San Jose, California, in a department of computer sciences. His field of interest while there was computer data bases. Dr. Nilsson is currently with BBC Nordisk Brown Boveri A/S as a systems engineer in the field of process control systems. He received his M.S. in electrical engineering in 1974 and his Ph.D. in computer science in 1976 from the Technical University of Denmark, Copenhagen.

Guenter H. Schwuttke

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Dr. Schwuttke joined IBM in 1962 and has worked in and managed development groups dealing with semiconductor materials research and processing and with solid state physics. His specific interests include radiation damage, ion implantation, and crystal growth. Dr. Schwuttke is currently manager of an advanced silicon materials technology development group. He received his Ph.D. magna cum laude in physics from the University of Munich, Germany, in 1952. He also serves as a consultant to the Department of Energy and to various other United States governmental agencies.

Richard E. Stillman

Data Processing Division, Scientific Center, Palo Alto, California

Dr. Stillman joined IBM Research Division in 1958 in a process control group. He is currently a staff member at the Scientific Center, where he is working on the simulation of coal gasification reactors. His past work has been in the areas of process simulation and optimization, and numerical solution of differential equations. Dr. Stillman received his B.S. from the University of Kansas, Lawrence, in 1951, his M.S. from the University of Kansas in 1956, and his Ph.D. from the Pennsylvania State University, University Park, in 1961, all in chemical engineering. He is a member of the American Institute of Chemical Engineers, Phi Lambda Upsilon, Sigma Tau, Sigma Xi, and Tau Beta Pi.

James A. Van Vechten

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Dr. Van Vechten is currently manager of a device materials and surface chemistry group at the Thomas J. Watson Research Center. In 1974 he joined IBM and in 1976 became manager of a device materials group. Prior to joining IBM, he worked for Bell Laboratories, Murray Hill, New Jersey, in the theoretical physics research department in 1969. From 1969 to 1971, while serving in the U.S. Naval Reserve, he was infrared project officer and acting head of the theory section of the semiconductor branch at the Naval Research Laboratory, Washington, D.C. From 1971 to 1974, he returned to Bell Laboratories in the optical electronics research department. Dr. Van Vechten received his A.B. from the University of California, Berkeley, in 1965 and his Ph.D. in physics from the University of Chicago in 1969. He received the National Science Foundation and the Fanny and John Hertz Foundation Fellowships. He also received an official commendation from the U.S. Department of Navy for scientific achievement. Dr. Van Vechten is a fellow of the American Physical Society and a member of the Electrochemical Society, the Materials Research Society, and Phi Beta Kappa.

Michael W. Weston

Federal Systems Division, Huntsville, Alabama

Mr. Weston is currently a staff engineer in a systems analysis group in Huntsville. He received his B.S. from Auburn University, Auburn, Alabama, in 1968. Since joining IBM in 1968, Mr. Weston has been involved in the analysis of varied systems including the Saturn V Launch Guidance System, other advanced space systems, and a system used to automatically control formation flight of target drone aircraft for the U.S. Army. Recently he has been involved in the analysis of solar energy heating and cooling subsystems and the analysis of collector subsystems used for the collection of incident solar energy in those systems.

Kuei H. Yang

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Dr. Yang joined IBM in 1967 and until 1972 worked on chemomechanical techniques for polishing silicon wafers. He has since been using transmission and scanning electron microscopy, as well as x-ray topography, for the characterization of materials and the investigation of defects. He earned his degrees in chemical engineering: the B.S. from Tunghai University, Taiwan, in 1963, the M.S. from the University of Missouri, Rolla, in 1967, and the Ph.D. from Washington University, St. Louis, Missouri, in 1972. Dr. Yang is a member of the Electrochemical Society.