

Authors

Carmelo F. Aliotta

Thomas J. Watson Research Center, Yorktown Heights, New York

Mr. Aliotta is a Senior Research Associate in the Physical Science Department at the Research Center. He has studied at Dutchess Community College and Marist College in Poughkeepsie, New York. Prior to joining IBM, he worked in electron microscopy at the Texaco Research Center, Beacon, New York. In 1956 he joined the magnetics group at the Research Center. His present interest includes transmission and scanning electron microscopy and electron probe microanalysis. He is a member of the Electron Microscope Society of America and the Electron Probe Analysis Society of America.

John A. Barker

Research Division, San Jose, California

Dr. Barker joined IBM in 1969. He is engaged in the study of statistical mechanics, intermolecular forces, and the properties of matter in solid, liquid and gaseous states. He received a B.A. and a B.Sc. in Physics and Mathematics from the University of Melbourne, Australia in 1945 and a D.Sc. from the University of Melbourne in 1958. He spent 18 years with the Australian Commonwealth Scientific and Industrial Research Organization, and was subsequently in the Department of Applied Mathematics at the University of Waterloo, Canada. Dr. Barker is a Fellow of the Australian Academy of Science.

A. Eugene Blakeslee

Thomas J. Watson Research Center, Yorktown Heights, New York

Dr. Blakeslee is currently a member of the crystal synthesis group at the Research Center, where he has investigated the epitaxial growth of gallium arsenide and gallium arsenide-phosphide. Before joining IBM Components Division in 1962 he pursued the same effort at General Electric. While at the Bell Telephone Laboratories from 1957 to 1960 he investigated diffusion in germanium and silicon and also studied the epitaxial growth of silicon. From 1955 to 1957 Dr. Blakeslee studied the production and characterization of zinc oxide photoconductive powders for electrostatic photography. His doctoral research involved crystal structure analysis by x-ray crystallography, for which he was awarded a Ph.D. in Physical Chemistry from Cornell University in 1955. He also holds a B.S. in Chemistry from the Pennsylvania State University. He is a member of the Electrochemical Society and the AAAS.

Jose R. Calva

General Systems Division, Rochester, Minnesota

Mr. Calva is a Staff Engineer in the General Systems Division Laboratory at Rochester. He joined IBM in 1965 at the Rochester plant after receiving his B.Sc. in Electrical

Engineering from the Pennsylvania State University. While working with a manufacturing engineering group Mr. Calva contributed to the design of a general manufacturing process control system intended for use in various IBM plants. He participated in establishing the specifications for all aspects of the system including the transmission control unit and the Process Control Operating System (PCOS), and later, concentrated on the design of error recovery routines. He transferred from the plant to the development laboratory during the summer of 1970.

Conrad M. Cox

Systems Manufacturing Division, Boulder, Colorado

Mr. Cox is a Test Methods Engineer in the magnetic head electrical engineering group at the Boulder plant. He has attended the University of Colorado and various technical and trade schools. He served in the U. S. Air Force from 1956 to 1960 as a technical instructor in radio and radar navigation equipment. Mr. Cox joined the Martin Company in 1960, where he worked in test equipment development for the Titan I, II and III missile programs. He joined IBM at Boulder in 1965, working initially on tape drives and then on magnetic heads final test. For the past two years he has been helping develop subassembly test methods for magnetic head components.

Joseph L. Evjen

General Systems Division, Rochester, Minnesota

Mr. Evjen is a Senior Associate Engineer with a test equipment engineering group at Rochester. He joined IBM with the Federal Systems Division in Kingston, New York in 1959 and worked with the SAGE project at Kansas City, Missouri. In 1965 he was transferred to the Cape Kennedy Facility in Florida, where he worked in the Apollo program. He transferred to Rochester in 1969.

Richard F. Filipowsky

University of South Florida, Tampa, Florida

In August 1970, Dr. Filipowsky joined the faculty of the University of South Florida as a Professor of Engineering in Electrical Communications. He had been a Senior Engineer in the IBM Federal Systems Division Space Systems Center in Huntsville. His education includes a B.E. (Ingenieur), 1936, an M.E. (Diplom Ingenieur), 1939, and a D.Sc. (Doktor Ingenieur), 1955, all in Applied Physics from the Technical University in Vienna, Austria. He worked for the Telefunken Company in Berlin from 1939 to 1946 and for the Marconi Company in Lisbon, Portugal from 1948 to 1950. He was Professor of Electronics and head of that department at the Madras Institute of Technology in South India from 1950 to 1955. Since 1955 he has been in the United States, where he has held positions as Advisory Engineer at the Westinghouse Electronics Division in Baltimore and Assistant Director of Research and Development at the Collins Radio Co. (Western Division). Dr. Filipowsky joined IBM in 1960. He is a Fellow of the IEEE, the AAAS, the British Institution of Electronics and Radio Engineers and of the Australian Institution of Radio and Electronics Engineers. He is a member of the New York Academy of Science and a registered professional engineer in Maryland and Alabama. He is coauthor of two books on space communications, a four volume bibliography, and multilingual technical dictionaries.

Robert B. Fischer

Systems Manufacturing Division, Boulder, Colorado

Mr. Fischer is a Senior Associate Manufacturing Engineer in a magnetic tape head manufacturing engineering group at the Boulder plant. He studied Electrical Engineering at the Milwaukee School of Engineering and at the University of Colorado. He joined A. C. Spark Plug Co. in Milwaukee in 1956 and worked on missile guidance check-out systems. He also worked on the development of the Titan II and Titan III airborne computers for missile control systems at Martin Co., Denver, Colorado. Mr. Fischer joined IBM at Boulder in 1965 to work on the IBM 2400 Tape Drive. He is currently developing process control techniques for the magnetic tape head manufacturing process.

Thomas J. Harrison

General Systems Division, Boca Raton, Florida

Dr. Harrison is currently the manager of Advanced Data Acquisition and Control Technology at the Boca Raton Laboratory. He received the B.S. and M.S. in Electrical Engineering, 1957 and 1958, respectively, from the Carnegie Institute of Technology; and the Ph.D. in Electrical Engineering, 1964, from Stanford University as a result of study under the IBM Graduate Resident Study Program. Dr. Harrison joined IBM in 1958 to work in speech recognition studies. Since 1960 he has been involved in the development of data acquisition and control products at the Mohansic, San Jose, and Boca Raton Laboratories. He is a member of Tau Beta Pi, Sigma Xi, Eta Kappa Nu, the Institute of Electrical and Electronics Engineers; and is a Senior Member of the Instrument Society of America.

Douglas J. Henderson

Research Division, San Jose, California

Dr. Henderson has been a research staff member since 1969; he is engaged in the study of intermolecular forces and the structure of liquids. He received a B.A. in Mathematics in 1956 from the University of British Columbia and a Ph.D. in Physics in 1961 from the University of Utah. He subsequently worked in the Physics Departments of the University of Idaho and Arizona State University and in the Physics and Applied Mathematics Departments of the University of Waterloo, Canada. He spent the academic year 1966-67 as a visiting scientist at the CSIRO Chemical Research Laboratories, Melbourne, Australia. Dr. Henderson received an Alfred P. Sloan Foundation Fellowship (1964) and an Ian Potter Foundation Fellowship (1966). He is a Fellow of the American Physical Society and of the Institute of Physics, and is a member of the Canadian Association of Physicists.

Richard O. Hippert, Jr.

Systems Development Division, Raleigh, North Carolina

Mr. Hippert is a Staff Engineer in the Advanced Communication Systems Development group in Raleigh. He joined IBM in 1965 after working for three years as a test and application engineer at ITT. He received a B.S.E.E. from Virginia Polytechnic Institute in 1961, and is a member of Eta Kappa Nu and Tau Beta Pi. Since joining IBM, Mr. Hippert has worked in several areas related to the development of computer input/output equipment.

Charles Holdinsky

Systems Manufacturing Division, Boulder, Colorado

Mr. Holdinsky is an Associate Engineer in a magnetic head electrical engineering group in Boulder. He has been with IBM since 1956. His education includes degrees from National Radio and Northwest School of Electronics. He also attended Colorado State University. He worked for U. S. Steel Corp. from 1952 to 1954 and with an electronic equipment service company from 1954 to 1956. Mr. Holdinsky is currently working on the design and application of process control test equipment for the magnetic head assembly lines. Prior to his present assignment he was engaged in the design of test equipment for magnetic core memories.

Robert L. Homiak

General Systems Division, Boca Raton, Florida

Mr. Homiak is currently assigned to a group at Boca Raton studying market requirements for advanced applications of data acquisition and control systems. He joined IBM in 1964 to work in test engineering at the Federal Systems Division in Owego, New York. He worked on direct numerical control of machine tools with FSD and later with the Data Processing Division Development Center in Los Angeles. Mr. Homiak received a B.S. in Electrical Engineering in 1959 from the University of Detroit. He is a member of Eta Kappa Nu.

Cai Kinberg

Systems Development Division, San Jose, California

Mr. Kinberg is a Senior Engineer and manager of a group in San Jose concerned with system performance evaluation. He qualified in 1950 for the degree of Diploma Ingenieur of the Swiss Federal Institute of Technology, Zürich. After graduation he spent a year at the Institute as a Research Assistant in the Department of Telecommunication. In 1952-53 he worked with Brown, Boveri & Company, Baden, Switzerland on a microwave, multichannel communication system. In 1954 he joined IBM France and worked on the development of business machines for banks. Following the establishment of the IBM Research Laboratory in 1955, Mr. Kinberg returned to Switzerland, where he became involved in the development of advanced computer technologies based on magnetic and semiconductor materials. In 1960 he moved to Stockholm to start a new IBM development laboratory. In 1964 he joined the development group responsible for the IBM 1800 System and has since been located in San Jose. Mr. Kinberg is a member of the IEEE and Schweizerische Gesellschaft für Automation and has participated actively in the work of the IFIP and the AFAC.

Bruce W. Landeck

Systems Development Division, Poughkeepsie, New York

Mr. Landeck is an Advisory Programmer in a programming systems architecture group at the laboratory in Poughkeepsie. He has been with IBM since 1965. His education includes a B.S. in Engineering Science from Purdue University and an M.S. in Aerospace Engineering from the University of Arizona. Mr. Landeck was Programming Manager of the MPX/1800 Data Acquisition and Control System. He is a member of Tau Beta Pi.

Stewart H. Lewis

General Systems Division, Rochester, Minnesota

Mr. Lewis is a Senior Associate Manufacturing Engineer in advanced manufacturing engineering at the Rochester plant. He has been with IBM since 1967. His education includes a B.S. in 1966, and an M.S. in 1967, both in Mathematics from Western Illinois University. As a mathematician he has provided mathematical and statistical support to manufacturing projects. He also coordinated the development of the metallic surface fusion process. Mr. Lewis has taught mathematics at Rochester State Junior College and is a member of Sigma Pi Sigma.

Mitchell P. Marcus

Systems Development Division, Endicott, New York

Mr. Marcus is a Senior Engineer in the electrical technology department of the systems technology group at the laboratory in Endicott. He attended the University of New Hampshire and Princeton University and received a B.I.E. from Ohio State University in 1948, after which he joined IBM. His work pertains to switching-circuit theory and logical design. He has been teaching courses in switching circuits at IBM since 1954; he is also an Assistant Professor in the School of Advanced Technology at the State University of New York at Binghamton, where he conducts switching-circuit courses. He has been granted several patents and has received an IBM Outstanding Invention Award. Mr. Marcus is author of the book, *Switching Circuits for Engineers*.

Gerald U. Merckel

General Systems Division, Boca Raton, Florida

Mr. Merckel is the manager of data acquisition and control system test engineering at the Boca Raton Laboratory, where he joined IBM in 1969. He received a B.S. in Electrical Engineering in 1963 from the University of Florida; he attended the Oak Ridge School of Reactor Technology in 1964, and earned an M.S. in Engineering Physics in 1968 at Rensselaer Polytechnic Institute. From 1964 to 1968 he was a nuclear engineer with the United States Atomic Energy Commission. Mr. Merckel is a member of Tau Beta Pi, Sigma Tau, Phi Beta Kappa and the American Nuclear Society.

Ted G. Merry

General Systems Division, Rochester, Minnesota

Mr. Merry is a Senior Associate Manufacturing Engineer in mechanization engineering at the Rochester plant. He has been with IBM since 1965. His education includes a B.S. and an M.S., obtained in 1964 and 1965, respectively, both in Mechanical Engineering from the University of Minnesota. As a mechanization engineer he has developed and implemented automated manufacturing machines and mechanical test equipment, and has supplied special equipment for manufacturing research. Mr. Merry has been a member of ASME and has instructed classes on pneumatics, hydraulics and electricity as they relate to machine control. He is currently involved in the development of computer control for special manufacturing equipment.

Walter H. Niehoff

Systems Development Division, Endicott, New York

Mr. Niehoff is Manager of Electrical Technology in the systems technology group at the laboratory in Endicott. He has been with IBM since 1960. His education includes a B.S. in Electrical Engineering, 1960, and an M.S. in Engineering Mechanics, 1963, both from Pennsylvania State University. He is also Assistant Professor (part time) in the School of Advanced Technology at the State University of New York at Binghamton. He is a registered Professional Engineer in the state of New York.

Michael R. Radio

General Systems Division, Rochester, Minnesota

Mr. Radio is a Development Engineer in the Quality Assurance function at the plant in Rochester. He has been with IBM since 1960 and worked in manufacturing engineering groups prior to his present assignment. Before and after serving three years in the U. S. Army during World War II, he attended Case Institute of Technology (now Case Western Reserve University) in Cleveland, Ohio. He worked as a tool designer with the Cleveland Pneumatic Tool Company in 1941-42 and again in 1946. From 1946 until joining IBM in 1960 he was employed by Thompson-Ramo-Wooldridge (now TRW), where he was a Senior Production Engineer. Mr. Radio received an IBM Outstanding Contribution Award in 1965 for his work in the field of electrical discharge machining. He is a member of the Society of Manufacturing Engineers.

Steven A. Schmitt

General Systems Division, Rochester, Minnesota

Mr. Schmitt is a Senior Associate Engineer in an advanced manufacturing applications department at the plant in Rochester. In 1966 he received a B.E.E. and in 1968 an M.S.E.E. from the University of Minnesota. He began work at IBM in 1968.

James E. Stuehler

Systems Manufacturing Division, Boulder, Colorado

Mr. Stuehler received a B.S.E.E. from the University of New Mexico in 1962, where he was also employed as a part-time research assistant. In 1968 he received an M.S.E.E. from Stanford University while on the Stanford Honors Cooperative Program. From 1962 to 1964 Mr. Stuehler was employed by Lenkurt Electric, San Carlos, California in the development of carrier and data communication systems. During this period he was also a part-time electronics instructor at the College of San Mateo. In 1964 he joined IBM's Systems Manufacturing Division in San Jose, California as an engineer in the advanced technology group of test engineering. While there he contributed to the development of test philosophies and test equipment for the manufacture of IBM products. He also participated in the development of the Computer Operated Manufacturing and Test System, which is currently used in testing most of that facility's products. He later became Project Engineer and managed a test engineering depart-

ment whose responsibilities were to develop equipment for testing precision components. In 1968 Mr. Stuehler was transferred to the staff of SMD headquarters as an Advisory Engineer in process control. His responsibilities included advising IBM's manufacturing facilities in the use of computers for testing and controlling manufacturing processes. Mr. Stuehler is currently a Development Engineer in Boulder, where he manages a project responsible for advanced manufacturing engineering and computer-controlled manufacturing processes. He is a member of Eta Kappa Nu and the IEEE.

Frederick W. Thoburn

Systems Manufacturing Division, San Jose, California

Mr. Thoburn is a Staff Manufacturing Engineer in the San Jose plant, where he has been involved in information systems design, computer applications in a manufacturing and test environment and numerical control applications.

He has been with IBM since 1965. His education includes a B.S.E.E. from California State Polytechnic College at San Luis Obispo in 1965 and a M.S.E.E. from San Jose State College in 1970. He is a member of the IEEE.

Robert O. Watts

Research School of Physical Science, the Australian National University, Canberra, Australia.

Dr. Watts is a Research Fellow at the Australian National University, where his research interest is primarily the statistical mechanics of liquids, including both equilibrium and transport properties. He received a B.Sc. in 1965 from the University of London and a Ph.D. in 1968 from the Australian National University. During the academic year 1968-69 he was a Post-doctoral Fellow at the University of Waterloo, Canada and from August to December of 1964 he was a visiting research scientist at the IBM Research Laboratory in San Jose.

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