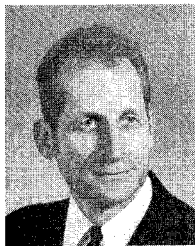


Contributors



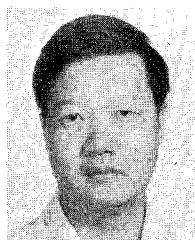
Fridolin Bosch (M'74) was born in Frickingen, Germany, on July 13, 1932. He received the Dipl. Ing. and Ph.D. degrees in electrical engineering from the University of Karlsruhe, Karlsruhe, Germany, in 1957 and 1964, respectively.

In 1958 he did research work on high-power tunable vacuum condensers with the English Electric Valve Company, Chelmsford, England. After that he returned to the Institute for High-Frequency Techniques and High-Frequency Physics of the University of Karlsruhe, where he attained a position corresponding to Assistant Professor. At Karlsruhe he was engaged in research on low-noise microwave amplifiers and on broad-band circulators for room and cryogenic temperatures. In 1968 he joined Bell Laboratories, Allentown, PA, where he has been involved in the exploration of active and passive millimeter-wave devices. He then worked on waveguide circuits and hybrid integrated transistor circuits for the modulators of the millimeter waveguide transmission system. Currently, he is engaged in the development of components for an optical-fiber transmission system.

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Keith S. Champlin (S'56-M'59) photograph and biography not available at time of publication.

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Steven S. Cheng (M'72) was born in Amoy, China, on March 14, 1941. He received the B.S. degree from the National Taiwan University, Taiwan, in 1963, the M.S. degree from Tufts University, Medford, MA, in 1967, and the Ph.D. degree from the California Institute of Technology, Pasadena, CA, in 1970, all in physics.

Between 1970 and 1971 he was engaged in experimental high-energy physics work at Harvard University. He is currently a member of the Technical Staff at Bell Laboratories, Holmdel, NJ.

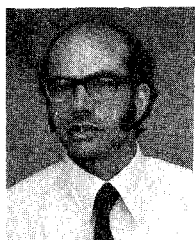
Since joining Bell Laboratories in 1971, he has been working on the system design and evaluation of the millimeter-waveguide transmission system and, more recently, on the fiber-guide transmission system.

Dr. Cheng is a member of the American Physical Society and Sigma Xi.

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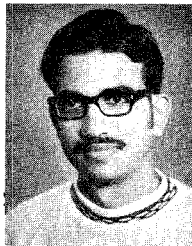
Gadi Eisenstein, photograph and biography not available at time of publication.

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Colin G. Englefield (S'60-M'61) was born in London, England, in 1935. He received the B.Sc. (Eng.) and Ph.D. degrees from Queen Mary College, University of London, London, England, in 1957 and 1962, respectively.

From 1959 to 1964 he was at the University of British Columbia, Vancouver, B.C., Canada, where he was engaged in the study of dielectric loading of waveguides for use in traveling-wave tubes and linear accelerators. Since then he has been with the Department of Electrical Engineering, University of Alberta, Edmonton, Alta., Canada. He is currently engaged in research on microwave solid-state devices and communication systems.



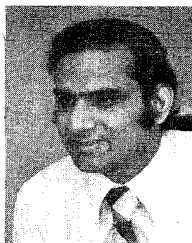
Ramesh Garg was born in Hissar, India, on October 18, 1945. He received the M.Sc. (Hons. School) degree from Panjab University, Chandigarh, India, in 1968, and the Ph.D. degree from the Indian Institute of Technology, Kanpur, in 1975, both in physics.

Since 1974 he has been with the Advanced Centre for Electronic Systems at Indian Institute of Technology, Kanpur. His research activities have been primarily in the areas of passive microwave integrated circuits, antennas, phased-array

radar, and Gunn circuits. He is a contributor to the book *Microwave Integrated Circuits* (K. C. Gupta and A. Singh, Ed., Halsted Press, 1974).

Dr. Garg was a recipient of the Outstanding Paper Award at the 1976 IEEE (India Section) Annual Convention.

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Ramesh K. Gupta (S'77) was born in Dhuri, India, on November 13, 1953. He received the B.Sc. (Engg.) Hons. degree in electronics and electrical communications from Panjab Engineering College (Panjab University) Chandigarh, India, in 1974, and the M.Sc. degree in electrical engineering from the University of Alberta, Edmonton, Alta., Canada, in 1976.

He received various merit scholarships during the years 1970 to 1974. He worked as a Graduate Teaching Assistant in the Department of Electrical Engineering, University of Alberta, from 1974 to 1976, where he is

currently working towards a Ph.D. degree with a research interest in microwave field effect transistors.

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Jürgen Köhler was born in Finow, Germany, on January 19, 1940. He received the Ing. grad. degree in physics in 1964 from the Physikalisch-Technische Lehranstalt, Wedel, Germany.

Since 1965 he has been with the Philips Forschungslaboratorium Hamburg GmbH, Hamburg, Germany. As a member of the Microwave Application Group, he has mainly been engaged in developing microwave components and microwave systems.

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N. S. Kopeika (S'66-M'71) was born in Baltimore, MD, on November 12, 1944. He received the B.S. and M.Sc. degrees in electrical engineering from the Moore School of Electrical Engineering, University of Pennsylvania, Philadelphia, PA, in 1966 and 1968, respectively. His research and thesis, performed as a Research Assistant, involved optical radar and communication and atmospheric optics. Supported by a NASA Fellowship, he received the Ph.D. degree in electrical engineering from the University of Pennsylvania in December 1971. His dissertation dealt with the detection of millimeter waves by glow discharge plasmas and the significance of such devices for detection of millimeter-wave holograms.

In 1972 he joined the Ministry of Defense, Government of Israel, where he was engaged in electrooptics research and development. In September 1973 he joined the Department of Electrical Engineering of the Ben-Gurion University of the Negev, Beersheva, Israel, where he leads the electrooptics program. His current interests include atmospheric optics, long-wavelength holography, optical communication, electronic properties of plasmas, and electromagnetic-wave-plasma interaction in the various portions of the EM spectrum.

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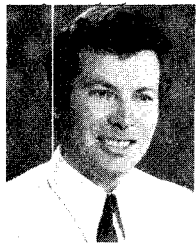
Alessandro Lipparini was born in Bologna, Italy, on August 31, 1947. He graduated in electronic engineering from the University of Bologna, Bologna, Italy, in 1974.

Since 1974 he has joined the Technical Staff of the Istituto di Elettronica, University of Bologna, Pontecchio Marconi, Italy, where he is currently involved in research in the field of microwave integrated circuits. Since March 1975 he has been a Researcher for the Italian Ministry of Education at the University of Bologna, where he has also

served as a Lecturer on Circuit Theory.

Mr. Lipparini was awarded the G. Marconi Prize for Scientific Research in 1974.

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Yaakov Makover was born in Kfar Hess, Israel, on November 26, 1949. He received B.Sc. degrees in both electrical engineering and physics from Ben-Gurion University of the Negev, Beersheva, Israel, in 1976.

His senior project involved phaselocking of two X-band reflex klystrons and sensitivity measurement of commercial glow lamps in heterodyne receivers. As part of his master's degree research at the same institution he is applying this technique, using in a receiver a matrix of

such detectors, towards recording of very low-intensity microwave holograms in real-time.

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Oded R. Manor was born in the Kibbutz Megiddo, Israel, on May 11, 1951. He received B.Sc. degrees in both electrical engineering and physics, with specialization in electrooptics, from Ben-Gurion University, Beersheva, Israel, in 1976.

His senior project dealt with phaselocking of two reflex klystrons, measurement of heterodyne sensitivity of inexpensive commercial glow lamps to X-band radiation, and application of both to very low intensity-level microwave holography.

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R. P. Meys was born in Eupen, Belgium, on April 2, 1948. He received the degree of engineer in electro-mechanics from the Université Libre de Bruxelles, Brussels, Belgium.

He has been working at the same university as an Assistant since 1972. His activities are centered on the study of noise in electrical components and circuits, and include the computer analysis of noise at frequencies down to fractions of a hertz, the design of low-noise amplifiers for the audio- and radio-frequency ranges, as well as various

topics in the microwave region. He intends to present a doctoral thesis in this field at the beginning of 1978.



Shutaro Nanbu was born in Kanazawa City, Ishikawa Prefecture, Japan, on February 24, 1946. He received the B.S. and M.S. degrees in electrical engineering from Kyoto University, Kyoto, Japan, in 1968 and 1970, respectively.

In 1970 he joined Matsushita Electronics Corporation, Takatsuki, Osaka, Japan. Since 1971 he has been working in the Research Laboratories, specializing in research and development of an MIC solid-state oscillator and other MIC components.

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

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Vittorio Rizzoli was born in Bologna, Italy, in 1949. He graduated from the School of Engineering, University of Bologna, Bologna, Italy, in 1971.

From 1971 to 1973 he was with Centro Onde Millimetriche of Fondazione Ugo Bordoni, Pontecchio Marconi, Italy, where he worked in the area of microwave integrated circuits. In 1973 he spent six months with the Hewlett-Packard Company, Palo Alto, CA, working in the field of microwave power devices. Since 1974 he has been an Associated Professor at the University of

Bologna.

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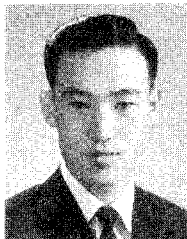


Burkhard Schiek was born in Elbing, Germany, on October 14, 1938. He received the Diplom-Ingenieur and the Doktor-Ingenieur degrees in electrical engineering, both from the Technische Universität Braunschweig, Braunschweig, Germany, in 1964 and 1966, respectively.

From 1964 to 1969 he was an Assistant at the Institute für Hochfrequenztechnik of the Technische Universität Braunschweig, where he worked on frequency multipliers, parametric amplifiers, and varactor phase shifters. From 1966

to 1969, he was involved in MIS interface physics and in the development of MIS varactors. Since 1969 he has been with the Microwave Application Group of the Philips Forschungslaboratorium Hamburg GmbH, Hamburg, Germany, where he has mainly been concerned with the stabilization of solid-state oscillators, oscillator noise, microwave integration, and microwave systems.

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Yen-Chu Wang (M'69) was born in Shantung, China, on November 25, 1938. He received the B.S. degree in electrical engineering from Cheng Kung University, Tainan, Taiwan, China, in 1960, and the M.S. degree in electronic engineering from Chiao Tung University, Hsinchu, Taiwan, China, in 1962. From 1963 to 1969 he was at New York University, Bronx, NY, where he received the Ph.D. degree in electrical engineering in 1969 for research in leaky space-charge waves in electron beam.

In 1969 he was an Associate Research Scientist at the Courant Institute of Mathematical Sciences, New York University, New York, where he studied mathematical problems of Gunn and avalanching diodes as well as nonlinear carrier waves in semiconducting media. In 1970 he was a member of the Technical Staff at Hughes Aircraft Co., Torrance, CA, where he worked in the area of transistor VCO and s-band micro-stripline varactor frequency doublers. From 1970 to 1973 he was with ADT Co. as a Project Engineer, and engaged in the development of ultrasonic and microwave motion-detection systems. From 1973 to 1974 he was employed as a Project Engineer with the General Microwave Corp., New York, where he designed and developed a microwave radiation hazard meter and a 1-12-GHz p-i-n diode SPST switch. He is currently an Assistant Professor of Electrical Engineering at Howard University, Washington, DC, where he is engaged in teaching and research in active and passive transmission lines as well as microwave GaAs FET and microwave integrated circuits.